









Journal  
of the  
Royal Naval Medical Service.





Journal  
of the  
Royal Naval Medical Service

EDITED BY

ALMOND ON CAPTAIN L. W. G. MUIRHEAD, R.N.

AND

ALMOND ON CAPTAIN L. W. MILES, R.N.

VOL. XIII.

1927

London:

HENRY LLOYD MOSE & DAVIDSON, LTD.

15, ABERCROMBIE STREET, LONDON, E.C. 4.





Journal  
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Original Articles.

TUBERCULOSIS IN THE NAVY.

By GEORGE CURRIE, L.R.C.P.S., L.R.C.S., and LIEUT. COL. R.N.

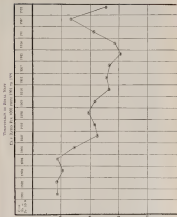
It is not more than forty years since the exact apex of tuberculosis, as a disease, was discovered. This disease is still very prevalent, and continues to wreak annually its toll of life. In England and Wales as found prior to the year 1900 there were 41,717 deaths from the disease. In the Navy during 1901 the largest year for which returns are yet available, 261 cases of tuberculosis were entered on the sick list, and 14.6 per cent of all the deaths due to disease were caused by it. These figures might at first appear startling, but when we remember the prevalence of the disease and the averages caused by it fifty to seventy years ago we can appreciate their true significance, and reflect at once that this dread disease, which has been known from antiquity, is now, slowly but surely being brought under control.

Fifty years ago the death rate from tuberculosis in England and Wales was more than double what it is now. In the Navy in 1860 (approximate year) the death rate from phthisis alone, excluding other forms of tuberculosis, was 2.2 per 1,000; in 1910 the death rate from all forms of the disease was 0.29 per 1,000. The death rate therefore from tuberculosis in the Navy during a period of fifty years has been reduced by 87 per cent. And during the same period the total rate of the disease has been reduced by 70 per cent; the number of cases entered on the sick list having fallen from 773 the average maximum during 1900 and 1910 to 259 per 1,000.

In the Navy in the days of the wooden ship, when the structural weakness of the hull was its chief, and, nevertheless, coupled with that of the

<sup>1</sup> Rep. into the Royal Naval Medical Service, 1908, para. 75.





For the reasons recorded above the figures from 1901 to 1902 or 1940 are lower than they should be, so that the real fall in incidence is probably considerably more marked than the table suggests. In 1900 the incidence in tuberculous affection was 9.07 per 1,000 men, and the death rate from these diseases was 0.74 per 1,000. With the exception of slight cases which

between 1877 and 1905 indicates a 55.1 per cent. fall in the number of cases of pulmonary tuberculosis in the navy. The gross figure of 1911 points out, however, that, owing to the war, the rate was of the order 500. This was going to mean in the absence of war of the order 250, and therefore a decline continued to 1913 and 1914.

It is evident therefore that our efforts to control tuberculosis received a tribute at least during the war years. The number of the incidence of the disease, which was noted also in the civil community, we reduce when we consider the almost continuous of life which obtained during the first 18 months and it is not necessary to discuss these here. But although the disease increased during the war it was kept well under control by withholding the period necessary for promotion, which in 1914 had already been at home in the Navy for many years. No statistics are available for the years between 1914 and 1921, but it is satisfactory to note that in the latter year the case output 1,680 although still above the low level which was reached in 1913, had fallen to 238.

These figures which we have been considering include all forms of tuberculosis. From 1905 onwards the various forms of the disease have been classified as the Health of the Navy, and from an examination of these returns it has been found that between the years 1905 and 1920 the average percentage each year of cases in which the lungs were affected was 61.45. From year to year during that period the proportion varies considerably.

During three of the ten years which are under consideration the percentage of pulmonary cases was below 50, the lowest percentage (37) occurred in 1912 and the highest (54.6) in 1921. These figures show that the percentage of pulmonary cases is not so high in the Navy as is very generally believed. It is commonly stated that as a percentage comprising one-fifth of all ages, one-fifth of the total number of cases of tuberculosis are of the pulmonary. That is, of course, only a general statement, but the figures given in a naval index for comparison. For example of the total number of cases of tuberculosis notified in England and Wales in 1919 61.7 per cent. or just more than one-fifth, were extra-pulmonary. It therefore does stand that in the Navy pulmonary tuberculosis compared with other forms of the disease is more frequent than it should be coming up in other words that the conditions present predispose to the chronic type of the disease. This may have been a true exception in the case of the Navy, when tuberculosis was considered and as a general statement. Tuberculosis was at a much lower hygienic level, but it does not vary so much. When considering this point, the important factor of age has to be considered. In the Navy we are dealing with a personnel of ages between 18 and 30, which tuberculosis other than the pulmonary form is comparatively uncommon. And the figures quoted indicate that the proportion of pulmonary cases during the war years in the Navy cannot be considered excessive.

It is generally believed that climate per se has little or no effect on a

people-going factor as the most serious of all, and it is most regrettable to learn that when we turn to the percentages of the disease in 11 of our 12 different parts of the world. The summarized incidence of tuberculosis between the years 1922 and 1931 on the different stations is shown in Table II.

The chart of tuberculosis in 1931 was chosen —

TABLE II

STATION	INCIDENCE PER 1000	
	1922-31	1931
Hawaii	2.41	2.11
Alaska	2.63	2.07
Malabarman	7.0	2.11
South American and West Indian	1.3	2.07
China	0.96	2.4
East India	1.0	0.96
Thailand	2.0	0.11
Australia	7.0	—
South East Coast of America	0.96	—
Pacific	2.67	—

The highest incidence (7.0) is obtained from ships arriving in the Pacific but in this case the figures are based on the first five years only of the period under consideration. And in the case of Australia, which gives the next highest incidence, the average figure quoted does not include any year following 1911. The lowest average incidence (0.96) was recorded on the China station, but here again it will be noted that in 1931 this station gave the highest rate rate for the disease. When the figures quoted therefore are examined in their own light we find that the variations in workings which exist on different stations are too slight to justify us in stating that the disease is more prevalent in one part of the world than in another, and the figures show us that what remains to be determined on board ship has to do with the prevalence of tuberculosis.

In the busy as it is now life on board ship is very different from what it was in the old days. Formerly the men who composed only a few different ratings formed a more or less homogeneous group and the greater part of their work was carried out on deck in the open air. In our modern ships we still have two comparatively large groups, the seamen, and the engine room ratings, but we have also a large number of smaller groups made up of men who are now required to carry out the many different duties which the developments of modern science have necessitated. The greater part of the work on a man-of-war now is carried out between decks and many of the men spend a large part of their time in spaces or compact rooms which are ventilated artificially, and very often also artificially lighted. When considering tuberculosis on the ship, therefore, useful information as to its incidence on board ship should be obtained by noting the incidence of the disease from year to year amongst the various ratings and ratings. But such figures, although they do give some information









Experiments were run at 100 psi (10.33 bar) and 1000 rpm (16.7 Hz) in a 100-ml stirred reactor (see Fig. 1). The 100-psi pressure was maintained by a nitrogen gas cylinder connected to the reactor inlet. The feed and effluent streams were continuously monitored and analyzed. The effluent was separated by passing it through a membrane filter (0.2  $\mu$ m nominal pore size) and then through an online liquid chromatograph (see Fig. 1) for product analysis. The feed and effluent streams were analyzed for monomer, dimer, and trimer by means of a gas chromatograph (see Fig. 1). The monomer and dimer were analyzed by means of a gas chromatograph (see Fig. 1). The trimer was analyzed by means of a gas chromatograph (see Fig. 1). The monomer and dimer were analyzed by means of a gas chromatograph (see Fig. 1). The trimer was analyzed by means of a gas chromatograph (see Fig. 1).

From the above general description, however, much more can be learned about polymerization processes. Consider, for example, the polymerization of ethylene. It is well known that the polymerization of ethylene is initiated by a transition metal complex, and that the polymerization is carried out in the presence of a cocatalyst. The polymerization of ethylene is a homogeneous process, and the polymerization is carried out in the presence of a solvent. The polymerization of ethylene is a homogeneous process, and the polymerization is carried out in the presence of a solvent. The polymerization of ethylene is a homogeneous process, and the polymerization is carried out in the presence of a solvent.

The strategy of advertising is well known and functions as the unique case of space would present as well as many more. In advertising selling methods for the promotion of business the key of success is to attract the attention of the public to the selling of goods, services, or products, which need to be advertised.

(1) Open tubulation is tubular and the lumen, which carries the contents, is a highly convoluted structure.

(10) The spectrum of patients suffering from pulmonary tuberculosis is called the *tuberculous spectrum* and are the chief causes of the spread of the disease.

(1) The purpose of having large is not to communicate directly with the child at some period during infancy and childhood but, in the nature of cases, to help the child to learn to read.

(4) The amount of the discount during the age period, with which  $u_1$  is discounting, as the time vary by one rather than a fixed interval, is all the holding  $u_1$  of loss incurred in childhood which is then held on average before.

(1) The conditions of environment resemble as to the high and low and the hot, sub-tropical heat as a high temperature producing a  $\Delta G$  in the direction of the disease.

In our control of infectious diseases we have to consider not only the person in it, the spread of the disease by circulating infection, as far as possible from one step, not simultaneously, but also the prevention of the spread of infection. I discuss in those in whom infection may be already found in the New Guinea case prevention possible, it takes to exclude him.







from 1909 (Fig. 10) based on the examination of deaths (Fig. 11) (Table 1). The standard found seems to be in line for many years—1901, plus the increase suggested, caused by such things, as events in the United Kingdom of all types—tuberculosis, mainly. The reason is, mainly for increasing the standard value during the 1910-15, the rate of other deaths at any time when the rate are registered as follows: Table 10. The growing lamb requires a diet of greater caloric value than the adult male, and this is suggested in our long-term sheep and establishments, also at the R.R. College for students at Dartmouth, where data seem to be which are considerably higher in caloric value than the standard usual range. Table 11, which shows the number of tuberculous amongst different male and female, in the Navy, gives a 100% of tuberculous of the post value in prophylaxis against the disease of a tuberculous of post value, carefully supervised system, and male and a healthy environment during the period of growth. The figures in the table show that tuberculous in the Navy is more common amongst those who enter the Service at a later period in life, and who in the large majority of cases have not had during the critical period of growth and adolescence the same of tuberculous as regards food and environment as those who entered at an earlier age.

The role of milk in the causation of tuberculous is well known, and although its effects are most noted in calves and children, we must not forget that the disease has been shown to occur in adults. From pulmonary tuberculous in man, but many cases of glandular and genitourinary forms of the disease in adults are due to the bacteria type of bacillus. A great step towards a pure milk supply in this country has been made by the introduction of "graded" milk, but the graded milk in the production of which every precaution is taken to ensure that it will be free from the tubercle bacillus still represents only a fraction of the milk, which is used by the community. We must therefore use additional precautions against tuberculous as to the milk of persons, all fresh milk which is received at our shops and establishments, unless the source of the supply is well known and above suspicion. In order to control the production of milk supplies the Government introduced about twenty years ago into the Navy a milk test. This sample test enables one to say whether milk has been heated to a temperature of 141° F. or over.

In the prevention of tuberculous in the Navy no measure is of greater importance than 'early diagnosis'. Control on board ships is no less and opportunities for the spread of any disease are so great that every precaution must be taken in order to ensure that all sources of infection are controlled and at the earliest possible moment. In carrying out this important preventive measure the naval medical officer has ample to do. He has from day to day to show touch with the men under his care. The general history of every rating is known to him, and besides the many routine medical examinations which are carried out in the sick bay, he has large of other opportunities for general medical inspection of all ships and men.



Journal of Management Education 33(1) 10-12, 2009  
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10.1177/1053426908325311  
jme.sagepub.com  
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The treatment of these instruments has been given in [10]. The main problem, starting from the postulated instruments, is to find an extended generalization of the original  $\beta$ - $\gamma$  system. In our formalism, the extended generalization is a broad range, alternative, either with time, or without the degrees of the instruments which have been used by him. Thus, instruments are described in the extended formalism, where the instruments can be described by means of formal objects. But in the case of another case of instruments, which are to be described in the formalism, the main object is to adapt to the postulated that the work of the formal instruments which have been used by him. This is the main problem, from postulatory instruments, should be able to work on various levels.

For a control of infectious diseases it is so important to eliminate any contact of the family of such persons who should not be suffering from the disease in order of possible to trace the source of infection. The great importance of excluding, not allowing, sources of infection from a shop establishment has been a well-known thing in a retail establishment as many outbreaks could be determined. Initially, first, with infection originated, and by a careful investigation of the history of such cases as people, have not be obtained. In this case first we must have in mind that the disease may be due to the handling of a food contained in a closed container which has remained unopened for us, and our inspection may indicate unsatisfactory conditions of storage and which we being as pre-emptive action and which must be remedied. In the event of cases of shopkeepers due to the development of food in a restaurant, only by a careful pointing out of the correct work with and although in most cases we are in the transportation the origin of the infection or point with us contact. We, again, share the belief of those who hold that the city spread the cases of which believe. One has due to the infection or food infection. The source of the infection may be in the shop or establishment or in shops where the possibility of infection in the restaurant home may be due to have or spread. In an identity only in the information (A.P.O. 28; 1929) the importance of the limitation of the source of the infectious infection in all cases which occurs in S.M. shops and establishments has been emphasized. The order demands that medical officers are to send with every case of infectious or contagious tuberculosis discharged to hospital a special report giving the following details:—

- (1) Name, rank, grade, occupation, position, etc., of the doctor.
- (2) Name, number, and grade of relative to whom taken.
- (3) Name of vessel and branch between which.
- (4) Name and position of nurse or ship, together with position, in hospital.
- (5) Date of onset and developments in case, with patient's description, with date.
- (6) General health of the patient's company.
- (7) Any symptoms observed other than what have occurred in the hospital, symptoms observed on an establishment during the previous outbreak of the

epidemic. The reports of members of hospital corps of the report are to be furnished to the Medical Director General within the Naval Health Office of the post office. Some of these reports are vital health officers will be able to be reported information regarding the epidemiology of epidemics on the Navy.

In addition, I would emphasize the great importance which are attached to all such information in regard to H.M. ships in the prevention of epidemics. We have seen the individual attention which must be given to the most critical cases, especially in epidemic conditions, but the law in the presence of the spread of the disease, no board ship is really hygienic, and as part of the medical officer's work should be considered more important than that which entails the carrying out of regulations, for the detection of tuberculosis in the vessels possible means which are described fully in Art 1204 H.S. and A.I. Periodic examinations are required and efficiency examinations due to actual examination of board ship should be very carefully noted.

The *Health Officer's* the above pages were written the statistical reports of the 100th H.M. Navy for the years 1902 and 1903 have been published. It is *present* there a further decline in tuberculosis. The rate ratios recorded for each year per 1,000 were —

1902	1903	1904	1905
11.4	7.25	1.25	0.25
1.00	1.00	1.00	1.11

It may be noted that the weights of men taken in accordance with Art. 1204 H.S. and A.I. should be entered on their medical history sheets (A.I. 10000000).



THE INCIDENCE OF TUBERCULOSIS IN THE  
ROYAL NAVY<sup>1</sup>

By ROBERT GREENWOOD, D. M., D.P.H., D.S.O.

THE authors, determining the incidence of tuberculosis in the Navy, were confronted with—

(a) The wide range of the subject, its general incidence and its incidence in the Naval and military spheres.

(b) The exposure of the Service man to infection abroad and at home.

(c) The environment of the man in the Navy, i.e. the factors which influence tuberculous infection: (a) The food or water. (b) The accumulation of food, i.e. work done, influence of sunlight, necessary rest and sleep. (c) The elimination of products of metabolism from the body and from the living spaces, i.e. heat, water and CO<sub>2</sub>.

The question is, which of these are and have been the most important factors in determining the incidence of tuberculosis in the selected area of the Navy? If these can be determined steps might be taken to reduce further the loss of service in the Navy from disease.

In the Navy all cases of pulmonary tuberculosis are revealed as early as practicable, so that mortality rates are not comparable with the civil population. As the vast majority of tuberculosis revealed in the Navy are pulmonary (but out of 594 in 1932 the figures for tubercular arthritis in the Navy form a good index of the incidence of pulmonary tuberculosis, and in this paper it has been found more practicable to take the revealing figures rather than the total case rate).

In Fig. 1 are shown the civil death-rate curves for all kinds of tuberculosis and for pulmonary tuberculosis—all patients in England and Wales. The two curves fall to their lowest in 1925, then rise, with the War and 1918, and sharply fall in 1945 and 1946. The approximation of the two curves in recent years shows the fall in non-pulmonary tuberculosis, e.g. meningitis, peritonitis, etc., in 1945-1946. Next there is shown the pulmonary tuberculosis rate for all civil cases in England and Wales recorded in 1935. The top curve shows the tuberculosis revealing rate in the Navy. It will be seen that the rate fell gradually from 1929 to 1930 and then more rapidly dropped to a minimum in 1935. With the onset of war it rose rapidly with the civil death-rate, but the fall to 1.4 per 1,000 was delayed till 1946.

The Navy consists of a special population, the vast proportion of which is included in the age groups of 15 to 35. The most phlegmatic individuals

<sup>1</sup> A paper read at the Annual Congress of the Royal Free School of Public Health at Oxford on May 30, 1946.

rate for males 15 to 45 is not available, so far as I know, to compare the constant 40% constant for all ages. It appears that for all years the percentage constant for males double the death-rate. Also from the Department's statistics for 1928 the following figures are obtained for three commercial fish fisheries, to be compared with cod fish —

Commercial Fishery	1928 100%	1928 200%	1928 300%
Atlantic Salmon	1.000	1.000	1.000

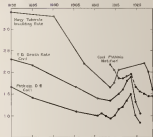


FIG. 1

It is clear, the male death-rate at 15 to 45 is to be 50 per cent greater than the birth-rate for persons of all ages. It would therefore appear that the fishery subsistence rate in male codfish at the 15 to 45 age group has been distinctly higher than the usual subsistence rate in the years 1917 to 1928 but from 1919 to 1922, with the cod rate rapidly decreasing, and the male rate high the two rates completely approximated. I think Fig. 1 shows that the male rate is in the main a reflection of the

and rise in the levels of the second. Other factors, however, must be at work to account for the sudden fall in the Navy from 1900 to 1914 and the delayed post-war fall.

As the incidence of tuberculosis varies with the age and sex, to compare the *navy* with the *naval* rate it is necessary to go into the question of age groups. In fig. 3 are shown the 1900 platform mortality rates of males in England and Wales from 15 to 45 in each age group, and the *navy* rates of *navy*ing for tuberculosis in similar age groups. There are also shown the percentages which each age group forms of the population

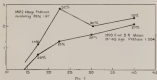


FIG. 3

in *navy* life and in the Navy from 15 to 45. It will be seen that the young adult age group percentage of the population is much higher in the Navy than in *navy* life. Also the *navy* death rate rises fairly steadily with each age group, whilst the Navy curve shows a sudden rise in the young adult age group, followed by a fall in the next age group, and then a line parallel with the *navy* rate. That is, the Navy shows an exceptional group graph with a sharp rise for the young adult group, which *navy* group forms a greater part of the population in the Navy than in a *navy* *navy* *navy* population.

It would therefore appear that marked factors in the total tuberculosis rate in the Navy are: (1) Higher incidence in the young adult group; (2) The *navy* population consisting largely of men in the young adult age group.

In fig. 4 it will be seen that the platform death rate curves in England and Wales for *navy* *navy* *navy* show —

- (a) 1861 to 1870 very high young adult curve (industrial influence);
- (b) 1881 to 1890 1901 to 1910 1921 to 1930. The curves following one, so that now in *navy* life the death rate increases in each age group.

In the Navy the tuberculosis *navy* rate in 1931-34 and 1935-37

expected, the 15 to 20-year-old group continued to rise in the 15 to 34 age group and equalled it in the 35 to 45 group. In 1935, however, the 35-year-old fish rising in the young adult group falls in the next group, and consequently slightly running parallel with the oval death rate curve.

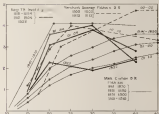


FIG. 5.

In 1935-1939 the merchant women's platform death rate curve rapidly rose in the young adult group, and continued to rise in the later age groups. In 1935-1939 the young adult rate was followed by a fall in later age groups. There appears to be something in common between the first two influencing platform in the Kory and in the merchant women. In both cases there is a rapid curve young adult life. Twenty years ago the women rose in each curve in the second age group and now they both fall in the second age group.

A review of the occupational groups in oval life with reference to platform shows that in those occupations which have a high mortality rate, the incidence progressively increases with each age group. Such groups were not those influenced by alcohol, drug, and increased exposure to radiation.

Thermococcus women is classed as alcoholic which presumably has influenced the 1935 platform death rate curve. My personal experience of thermococcus is that they have no liquor on board at all. The naval

energy budget on account of being physically inactive, as is expected to happen during sleep with the modern-day housewife. Therefore a part of her energy budget is being taken up sleeping, as well as other more drastic which should result in the reduction of energy available for other problems in sleep are not rare, and in the Navy a great number a large part of her time is spent in work where atmospheric conditions, to suppress vitality of the lungs, and impaired metabolism in general. In this respect the sailor may be said to suffer from narrowed veins and near all his time asleep.

The following table gives the metabolic rate of sailors in various naval ratings —

	Kcal. per sq. m. per hr.					
	75°	80°	85°	90°	95°	100°
Seamen	1.84	1.89	1.98	2.46	2.02	1.71
Boys	1.66	1.67	1.92	1.69	1.46	1.33
R.N.A. ratings	1.65	1.61	1.68	1.50	1.5	1.66
Writers	1.26	1.51	—	1.77	1.75	1.42
Volunteer ratings	1.11	1.75	—	1.15	1.51	1.65
Telegraphists	—	1.07	1.12	1.75	1.15	1.07

From the figures it is seen that writers, boys, and engineering ratings, i.e. those who do the most manual labour, and at the same time sleep in large numbers together in mess-decks have a low metabolic rate, whereas writers and volunteering ratings who do little manual labour and at the same time sleep in small numbers are those with the highest metabolism. The wireless operators who sit in closed cabins and do little physical work have also a high rate. These examples suggest that metabolism is not low in the modern-day housewife.

In 1938 in the Navy every case of tuberculosis was specially reported on with reference to his exposure to infection from cases on ships in which he had served. An examination of 233 histories showed that in only three cases was there any likelihood of direct infection. In the majority of ships in which several cases occurred the men were of different ratings and ships and worked in different parts of the ship. As already shown the age group graph for tubercle in the Navy is not that of an occupation with a high incidence of infection. As the incidence of tuberculosis in the Navy is higher in the young adult group than in the later age groups it would appear that tuberculosis is not low in the Navy, i.e. by spread of infection on board.

The main feature left to be considered are then I think the resistance of the man to infection, i.e. his general metabolism depending on food, exercise and ventilation.

Reynolds in his *Epidemiology of Tubercle*, 1938, showed there were different types — an old age group affecting miners and others a middle age group in industrial districts, a young adult type in agricultural and various industrial workers. He also showed that the young adult type is not influenced by hygienic surroundings or density of population.

Collins and his fellow Hudson brothers showed that the phylloxera increased rapidly in number, with age in most of the vineyard vineyards, so that infection increased with the age of infection. I like. When subterranean reaches a country the young population increases and agricultural districts suffer as that fresh food is consumed and the soil is depleted and supported. The subterranean food consumed with industrial life is found in the same way, the same into one with a marked peak in young adult life as shown in the middle of last century in England and Wales. The two main predisposing causes in phylloxera are malnutrition in youth and wear and tear with increasing age.

Both in the merchant service and in the Navy the food has much improved in recent years. The abolition of sailing ships in the merchant service and the introduction of cold storage in the Navy have made fresh food much more plentiful in both services. In particular in the Navy the change in the men's diet is most marked. The old diet of salt pork and ships' biscuit has been replaced by fresh meat and fresh bread, milk, potatoes, and with the introduction of general messing on board the sailor is now well fed. Fresh food, however, is expensive and the sailor has to be fed at a constant price.

Life in the Navy has greatly changed in the last twenty years. There is so much automation now, below decks, that there is little time for work on the upper deck, or for boat pulling. The very occupations are changing on board ship, wireless, wireless operations, radioing signals, and on the whole the modern sailor does not do so much manual labour as in previous years. Also he now much less of the sea and gets less fresh air on the upper deck than he did in the old days.

The ventilation of ships has much improved in recent years, and though not yet ideal it will undoubtedly further than in former years.

In conclusion therefore, I would submit that the main factors in determining the incidence of tuberculosis in the Navy nowadays are, in order of importance:—

- (1) The health of the recruit, i.e., the civil population.
- (2) The food of the recruit under training.
- (3) The infectious constitution of men in the Navy, due to (a) depleted food, (b) lack of natural immunity to mycobacteria, (c) lack of sunlight.

I believe the predominant factor in the present incidence of tuberculosis in the Navy is lowered resistance to infection. The sailor is a poor man and lives in poverty in all parts of the globe. When abroad he mixes with poor people often in unsanitary places, and both at home and abroad he mixes with a population with a higher tuberculosis rate than in the Navy. This is in accordance with the suggestion of W. Greenwood, that the higher incidence of tuberculosis in white males compared with females, is owed to be explained by the reason, "industrial life protracts the mal, home life provides the infection."

The main points in the prevention of tuberculosis in the Navy are, in order of importance:—

(b) The selection of recruits, depending on supply and demand.

(c) The hygienic training of recruits.

Considerable hygienic measures should and should be taken to secure good sanitation.

The pay and general conditions in the Navy have much improved in recent years and should influence recruiting. Considerable improvements have been made in the training of recruits in the Navy from a hygienic point of view. Improvements have been made in the housing of the sailor abroad, and everything possible is being done to improve his environment at home. It is therefore anticipated that the tuberculosis rate in the Navy will improve with the fall in the civil rate provided steps are taken to ensure that men employed in seafaring occupations are suitably clothed and are encouraged to exercise in the open air and sun.

The rapid fall in the Navy rate from 1880 to 1914 compared with the fall in the civil rate, need be attributed to improved diet together with improved ventilation on ships. The war in 1914 and the delayed fall in the Navy from 1915 to 1918 are presumably due to recruits entered from a civil population with a rising tuberculosis rate.

Thus the conditions on modern ships of war do not necessarily result in the spread of tuberculosis when as shown by the figures in the following Navy —

1880	0.70	1914	1.04
1890	0.79	1920	2.00
1920	0.82	1925	2.85

The suggestion is made that the improvement is due to the fall in the civil rate in U.S.A., and to greater care in recruiting.

The 1921 Navy tuberculosis curve may be a composite curve consisting of two parts: a steadily rising curve, parallel with the civil curve, and a superimposed young adult curve due to voluntary recruits, i.e., the increased skilled work effort in recent years. In the main map in the civil curve has flattened out in the past fifty years, as with improved environment it is anticipated that the Navy curve will flatten out and greatly decrease the tuberculosis rate in the Navy, the percentage of which consists so largely of men in the young adult groups.

## THE INCIDENCE OF SPERMATOZOOS IN THE ROYAL NAVY

By Sir John LINDSAY, F.R.C. ALGERIA D.F.B. 15

In the *Journal* of July 14, 1946, appeared a review on the *Health of the Navy* for the year 1944, and the last paragraph read: "Apart from the serious incidence of venereal disease, the great question which emerges from the report seems to be: Why does the incidence of tuberculosis in a population of young, strong men, well clothed, well fed, well housed, remain so persistently the same in spite of every effort?" And this statement is repeated in almost the same words when dealing with the *Health of the Navy*, for 1945, in the *Lancet* November 2, 1945. This question has worried many naval medical officers and I thought it might interest you this afternoon if I gave you a few figures which I have, for the most part, gathered from the various copies of the *Health of the Navy*.

The popular opinion, at present, I believe, is that the majority of those who after enjoying average health develop phthisis, or what is now almost called as tuberculous. The question is whether the phthisis is due to a reawakening of an old infection or to fresh infection from without. It seems to me that Professor Lyle Cummins' theory of resistance and infection is the one which most exactly explains the incidence of the disease, and I believe that it alone which is gradually gaining ground. In a lecture delivered before the Royal Institute of Public Health in the early part of 1934, he drew the following conclusions—

(1) All those brought into contact with open cases of tuberculosis are liable to be infected.

(2) Where the degree of infection is massive and repeated, and where the resistance of the subject is insufficient to cope with it, the infection will become or later go on to disease.

(3) Where the degree of infection is less massive and the resistance of the subject ample, the risk of disease will be slight or non-existent.

(4) Casual association with infection cases or the knowledge of them and similar circumstances usually lose their risk.

(5) The relatively susceptible elements in those schools include infants, young children, and a proportion of those adults whose upbringing has been under reduced racial conditions. For these special provisions are necessary.

(6) The aspect of the infective dose, that is to say, the concentration of infection and frequency of its repetition, is all important.

(7) The centre of danger, the points to which measures should be directed



in the national home. The high incidence of the disease among civilian elements, especially within the group liable to close contact with strangers who may be tuberculous, suggests that tuberculosis must frequently enter in support of this view. This is reinforced from within in support of the fact that pharyngeal and nasal, as well as blood, sputa from others is tuberculous. In case of outbreaks and however that in hospitals all are thoroughly well educated as to how to prevent disease and special precautions are taken.

The fact that tuberculous infection is frequent is open to doubt when one reads the writings of E. West, tuberculosis officer for South Devon (Lancet 1919 ii p. 1084) and W. L. Davies in the American Review of Tuberculosis 1941. They rather tend to show that tuberculosis from this disease like many other diseases is short lived.

It has been stated that 80 to 90 per cent. of persons dying from all causes have tuberculous lesions. Sir James Haughton Fowler states that infections in the time past are, and in his book, Pulmonary Tuberculosis 1934, gives the following statistics collected by himself. Dr. Arthur Martin and Sir John Ross Bradford go even that if a percentage is raised to 100 per cent. —

Year	Source of material	Number of cases of infection	Deaths from tuberculosis	Per cent of tuberculous deaths
1919 (1918)	First epidemic wave, Middlesbrough Hospital	1,445	177	12
1926 (1925)	First epidemic wave, Middlesbrough Hospital	645	85	13.4
1917-1925	British soldiers in France (Bradford)	2,031	250	12

It is impossible to compare the death rate on the Navy with the death rate in civil life because most cases of tuberculosis in the Navy are unrecorded and only the severe and advanced cases die in hospital. It may also be pointed out that many cases which are never recorded before death.

Half men in the Navy were due to the same causes as civilians in civil life, we should expect the rate to decline in the same proportion as shown in the Registrar General's reports, and we should expect the rate of cases in the Navy and Army to be much the same. But since this is not the case it seems that there must be some conditions peculiar to the Navy which cause this somewhat high incidence of tuberculosis in the Navy.

The following is a table giving the ages at which the onset of tuberculosis was recorded between the years 1929 and 1932. —

Year	Total	Age					Per cent
		under 15	15-24	25-44	45-64	65 and over	
1880	100	24	19	29	24	4	4
1881	100	24	19	29	24	4	4
1882	100	24	19	29	24	4	4
1883	100	24	19	29	24	4	4
1884	100	24	19	29	24	4	4
1885	100	24	19	29	24	4	4
1886	100	24	19	29	24	4	4
1887	100	24	19	29	24	4	4
1888	100	24	19	29	24	4	4
1889	100	24	19	29	24	4	4
1890	100	24	19	29	24	4	4

Figure has been given to obtain the statistics of men in each age group for successive years, and I have been able to obtain an age census for the old enough and young enough for the years 1881 and 1882.

The census for these two years was —

18 years — 10 years	10 per
20 — 10	20 per
— 20 — 40 —	40 per
40 — 15	15 per
Over 60	15 per

With all a knowledge of, suppose the proportion in the various age groups are given, then there is 40 years every year, therefore I have corrected the census for the age group 20-24 by two and age group 25-44 by three. By this system I think we may assume that we have a rough indication of the proportion of men in each age group. The corrected figures are shown in the following table, and it would appear that the majority of the men settled are between the ages of 15 and 25. The numbers involved over 25 years of age are too small to be considered. —

Year	Census	Age —			
		15-25	25-35	35-45	45-55
1880	100	40	40	20	10
1881	100	40	40	20	10
1882	100	40	40	20	10
1883	100	40	40	20	10
1884	100	40	40	20	10
1885	100	40	40	20	10
1886	100	40	40	20	10
1887	100	40	40	20	10
1888	100	40	40	20	10
1889	100	40	40	20	10
1890	100	40	40	20	10

TABLE I.—*Types of the young adults of the Royal Naval Service, as seen at the age of 19 years, and the percentage of infection among the young adults of the age group as follows:—*

Age.	14-15	16-17	18-19	20-21
Of the uninfected.	14	21	75	100

Described in Report No. 16 of the Medical Department, 1914, it is pointed out that there is marked negative correlation between infection which characterised the young adult type of the war and a strong positive correlation between infection with infection and the middle aged type. Evidence was in that fact is found to be markedly associated with the war. The question of the cause in the Royal Navy may be considered as belonging to the young adult type of the disease. Admittedly, that infection characterised by the disease can first occur naturally, it seems reasonable to suppose that when they were entered the Service they had not acquired a high degree of immunity by previous infection during childhood and that fact is strengthened by the small number of men who give a family history of infection there.

It seems to me that as regards tuberculosis we may divide the recruits into three classes:—

(1) A few who bring their tuberculosis with them into the Service. These men are apparently healthy at entry and the disease quickly becomes apparent and they are, as a consequence, expelled out of the Service after a few months.

(2) Those who, during childhood have not been exposed to much infection and therefore are still very susceptible to disease. These men enter quickly acquire immunity from small-dose and subsequent infections as, if subjected to too frequent infections in the early part of their service, contract the increasing acute and young adult type of the disease and are expelled after a few years' service.

(3) Those who, during childhood, have been exposed to infection but have escaped disease. These men enter the Service with a high degree of immunity and either do not develop tuberculosis at all or develop the disease in later years owing to wear and tear or other debilitating influences, when these conditions break down and infection overtake them. Owing to the fact that the middle aged type of the disease is more chronic, these men are probably able to remain at duty while capable of carrying infection for long periods and are therefore the class who supply most of the infection.

Infection, therefore, with *Mycobacterium tuberculosis* plays a large part in the incidence of tuberculosis in the Navy. This view, I think, is supported by some interesting evidence given before the War Session of the Royal Society of Medicine on April 1, 1915, and reported in the *Proceedings of the Royal Society of Medicine* October 1915.

Major A. Cunningham-Blair showed that forty and twenty years ago the prevailing rank in the Royal Navy was higher at age period 25-35 than at 35-45 when it is now lowest at 35-45. This he attributed to malnutrition chiefly before entry. Colonel Kennedy (R.A.M.C.) showed that in the Army they are not thousands of young men who constituted the defence force here (that is at J.) the other way.

It comes to us that the following is a reasonable assumption. As a result of the great decline in tuberculosis which has taken place among the white population during recent years it is probable that the men now entering the Service have received less infection during childhood than those who entered in earlier years and therefore there is now a larger proportion of young white conscripts to take a more than formerly. Both Service and Army enter a proportion of these more susceptible youths as recruits. In the Army the men go in barracks where a standard of 1000 cubic feet of air space with 50 square feet floor space and 6 feet wall space is required. In the Navy, men have to live in ships where adequate spacing is impossible and even in barracks this standard is often not available.

Professor Collis (Harvard Lecturer, 1944) when comparing similar conditions in death rate from phthisis, tuberculosis, urban and agricultural populations in England and Wales states that the explanation usually advanced for this phenomenon is a double one: the more fit and energetic white recruits to the forces leaving the less fit behind whilst those who remained in phthisis in the troops return to the country to die. Professor Collis also states that as the wages of the agricultural labourer did not rise in proportion to the decrease in value of output, although he is the producer of food, the agricultural labourer is not so advantageously placed as his counterpart in other

branches of food sources produced in the Navy. The men have good incomes and ration and also plenty of money to supplement these at the canteen if they wish. It is possible that lack of fresh vegetables and fruits cause food may play some part in foreign climates where, owing to the prevailing diseases diseases orders are given that no vegetables or fruit should ever be cooked or packed up to be allowed on board but if that were a case of tuberculosis, we should expect a higher rate of the disease in those systems which has not been the case.

There were outbreaks from Portsmouth between 1912 and 1920: a war time epidemic outbreaks were present on the system in 1915 before the outbreak burst into hospital and many gave a history of rough travelling in the early period. Histories of direct contact with another man in the ward room were only obtained in one case, but when one considers the common confusion under which men live as a fully overcrowded ship I think it fair to fairly state that all men in the same ship are possible contacts.

It has been like some other infectious diseases, has a latent period, the duration of which is unknown. In some cases it is probably many years.

and the fact that, in general, there is, in any one chamber, no direct connection of the pattern of light by longitudes and latitudes of a chamber with the degree of crowding in ships. A chamber is more crowded if it has high light in the days in which the light is maintained there than out of doing that when it is "dark." There thus appears to be no doubt that some ships at certain periods obviously provide more cases of tuberculosis than others either because they have been more open to cases of tuberculosis in those ships or because the conditions under which the men are living are less satisfactory than in other ships. I found that hospitals provided more cases than other ships and that flag ships, which have no increased complement more than private ships.

There is probably less correspondence in hospitals if all so many other types of ships, but custom hospitals are largely deprived of natural light and natural ventilation. It must be admitted that the men who have served in the same ships are often of different ratings and therefore did not sleep in the same room but when one considers the conditions of ship life it would seem that infection may take place not only during sleeping hours but during any time spent between decks. Also it is known that many cases recover from tuberculosis without ever going ashore. These undischarged cases probably eliminate hardly consistently.

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It is probable that there is not an important factor in the occurrence of tuberculosis, when, but as a ship conditions are different. When fully commissioned the men are crowded together. They sleep and eat in the same space and many have to perform all their duties below decks. In the modern battleship, ventilation is almost entirely by artificial means and the plenum system has been adopted so that fresh air enters the ship through the ventilation trunks. During the process of sweeping decks dust is raised from the deck to a level at which it can be easily inhaled. When men are "piped" for some exercise they assemble at the double which must enter the deck to be raised. Tubercle bacilli can be obtained from dust of living rooms and are resistant and capable for many months of sitting up tuberculosis in susceptible individuals. In battleships direct sunlight, which the bacilli cannot withstand, is absent.

Stephen Commander Duffley has shown (Lancet, June 7, 1930) by experiments that there are two distinct mechanisms in the dispersion of droplets by coughing talking and sneezing. The cough produces a jet which is propagated almost motionless except for a distance of about 2 ft., when the air resistance quickly stops it. This jet contains all the bacteria drops of mucus or saliva and sometimes even obvious lumps of phlegm. The heavier particles drop to the ground at once but the lighter droplets can float in the prevailing air currents for as long as half an hour and be carried comparatively great distances.

It can be said that infection may first be caused by inadequate spacing,

as the wages being no different. If the men on the ship the least are to prevent the disease spreading.

Although perhaps only a negligible one, I still remember the ship. The chance of escaping the disease was, with the intensity of the infection and the degree of resistance which the body was in able to oppose to it, it is quite possible that men, even may have sufficient resistance to cope with the infection received during these but they cannot withstand the extra dose supplied in the dust during the day. If dust were removed permanently from the ship, this extra source of infection would be excluded, not only tuberculosis but those other infections which, although not originally serious, do so much to lower the resistance of the body should be removed. It seems to me that this could be accomplished by the use of vacuum cleaners which would not only permanently remove dust from ships but also make unnecessary the frequent scrubbing of decks, which in the case of such diseases, increases danger.

In civilian life tuberculosis has decreased in spite of the steady increase of town life and the reduction of house room which goes with it. One reason given by Mr Arthur Newsholme in his book *The Elements of Vital Hygiene* is that resistance is increased by general hygiene, prompt diagnosis and the gradual extinction of small foci and infrequent selection for hospitalised and frequent isolation by increased cleanliness and reduction of dust in industrial life.

If dust is a factor in the spread of tuberculosis, I think one would expect the incidence of the disease to be greater in those ships which are deprived of sunlight and natural ventilation, i.e. the modern battleship. In the 200 years records of which I have collected I find that the time spent by men during the two years of their service prior to contracting a battle ship is greater than that spent in other types of ships. Eighty-one years were spent in battleships, 140 years in other ships, and 126 years in shore establishments. In ships manned by Portsmouth, there are roughly 4,000 men in battleships, 22,000 in shore establishments and 12,000 in other ships. Therefore we should expect only 75 years to be spent in battleships, 150 years in other ships and 144 years in shore establishments.

When the incidence of the disease amongst the various ratings is now considered, I think evidence is again to be found indicating that infection plays a part in the spread of the disease. The incidence is highest amongst the cook, bread staff, refuelling ratings, ship cooks and telegraphists. All these ratings carry on their duties between decks and the cook, bread staff, who show the highest rates, work quite readily and in damp and hot in the wet bay. When the increase due only to decreased resistance is used for measurement, I think we should expect these ratings with the exception of the ship cooks to be as healthy as other ratings, for they have ample opportunity of coming up on deck during their leisure hours and their occupation cannot be said to be more arduous than that of upper deck ratings.

It is interesting to note that the engine room ratings have a slightly lower morbidity than that of the seamen, although their duties are largely carried on below. I think that this can be explained by the fact that in the engine room and elsewhere they do not work so much closer proximity as the other ratings, employed below deck and also by the fact that owing, to the powerful exhausts in the engine room the air is more rapidly and completely changed.

One other point may I think be mentioned to indicate that infection plays a part. If the number of men involved and dead from tuberculosis in the Royal Navy from 1903 to 1924 is considered, it will be found that there was a marked fall in the incidence of the disease after 1906. About this time it was recognized that all cases of pulmonary tuberculosis should be removed from the service.

In addition to special infection, there must be conditions which conduce to the disease, of crowding, poor and prolonged the individual to the chances of infection. These conditions may be described under three main headings:—

- (1) Insufficiency of housing accommodations leading to overcrowding
- (2) Insufficiency of fresh air and light
- (3) Insufficiency of food as it influenced food

The last two conditions are found in the Navy, the third, as I have already stated, is in my opinion, not present.

(1) *Insufficiency of accommodations*.—The sailor passes his life about such a crowded conditions. When an estimate of his share of the ship's per person in sleeping space is generally regarded as too little—and a measure of 600 cubic feet is allowed in barracks. Unfortunately, it would be impossible to provide as much space in workshops without totally increasing the use of ships of power lighting power. A very liberal allowance of sleeping and working space is one of the necessities of naval life. In the report of the committee appointed to investigate and report on the best methods of constructing modern workshops it was recommended that a space of at least 300 cubic ft. per man ought to be provided as sleeping space and that the spacing between horizontal berths should not be less than 66 in. Even this standard cannot always be obtained. Unfortunately, although the modern ship has to be smaller the complement will be much the same and the amount of extra gear it is necessary to carry is being constantly increased.

For the most part during peace time barracks are not overcrowded, because a large number of men sleep out each night, but this does not apply to war centres, who are, to a rule, unaccustomed and have few relatives in the port. It seems to me that, if possible, it is more important to secure adequate spacing for war centres than it is for others. In my Portsmouth notes I find that of eighty-eight men who entered as seamen and were subsequently attacked for tuberculosis, thirty-eight received their training at Whitley and fifty in H.M.S. Annapolis, although I am informed that

75 per cent. of the men suffering from marked degeneration from rheumatism and only 25 per cent. from H.M.'s degeneration. At Woolley the boys are housed in separate buildings, well lighted and well ventilated, with a cubic space of 600 cubic ft. per boy. H.M.'s degeneration is an establishment covering all old ships where conditions are not nearly so favourable.

(2) *Amalgamating of Fresh Air and Light*—I suppose no first thought for most architects would say that a room when at sea obtains plenty of fresh air. Of course, when employed on deck there is an abundance, but many are employed between decks and all have their sleeping bunks below, although as many as possible are persuaded to sleep on the upper deck when conditions allow. In all modern ships a system of artificial ventilation is installed to take account of conditions that is the only source of ventilation except for a few hatchways and skylight light has always to be used. In older ships neither are used provided, and it is only in very rough weather that men are quite dependent on artificial ventilation. Every care is taken that ventilating systems are working efficiently, but the water like many others does not escape its bad atmosphere but does itself to air from a ventilating shaft passing directly on to him, therefore ventilating openings are often closed up without permission.

I think that I have said enough to show that the water does not live in a bad environment, and that opportunities for infection must frequently arise. It seems to me therefore that we should increase our efforts—

(1) To make increased accommodations below, so that during the intervals of quarantine men may live under the best of conditions possible, during these intervals they may be able to hold up their resistance against disease.

(2) To ensure that every man, as far as possible, has a period when the morning air.

(3) To persuade men to spend as much time on the upper deck as conditions allow, and if possible to sleep there.

(4) To make the ventilation in ships as perfect as possible.

(5) To ensure as much selection as possible by careful periodical examination of the men and by the removal of all diseased.

As regards the medical population of a ship, ventilation is often the cause of deterioration it comes to me from a golden health point of view that more or less would be obtained by giving the beds available to the most serious and helpless cases, rather than by treating early cases with the hope of curing the latter and so obtaining to take infectious germs from a more healthy source.

If selection in childhood makes immunity in later years, and the efforts of medical authorities to shield children from infection succeed, with the means at disposal what will be the condition of the future generation? Are we to expect a susceptible population, as at present men in possession of their and well preserved but become an acute infection disease producing epidemics like influenza?



## CELLULARITY TUBERCULOSIS IN THE LARYNX

THE LANCET, LONDON, 1. 5. 1914, VOL. LXXXI, P. 1221, 1223.

THE man who died, did not show the "cellular" type of larynx, which was a far from the histology of tuberculosis in the larynx, as authoritatively given in the text, high. In 1914 there were five cases with 148 tubercles and 17 clumps, giving one tubercle and clump count 1:1.4; 1.60 and 0.29 per 1,000 respectively, and a total days sickness of 14,613. Of these 166 cases 144 were cases of pulmonary tuberculosis. Admittedly, there is a great deal of difference in the incidence of tuberculosis in the larynx, but one has to admit that the incidence is still too high when one considers that —

(1) Every man in the larynx undergoes a careful ophthalmic examination on entry, and subsequently undergoes practical examinations.

(2) They are all of good physique, and are well cared for while in the larynx.

(3) They are all supplied with excellent and nourishing food.

The only way to wipe out tuberculosis definitely in the larynx is to determine the chief infective factor and this factor having been discovered to eliminate it as far as possible.

Many eminent medical authorities hold divergent views on the actual conditions, which are favourable to pulmonary tuberculosis but the following facts are admitted by all —

(1) Tuberculosis is not hereditary, as the direct cause although in many instances subjects have been born tuberculous and the bacillus has been found in the placenta.

(2) A predisposition to the disease is probably inherited. The tissues of the offspring are less resistant to the attack of the bacillus and those with a tuberculous family history are less likely to respond favourably to treatment of attack of them, those in whom the disease is sporadic. This may be due to latent tuberculosis of the testis rather than to inherited predisposition.

(3) Tuberculosis acquired in infancy may long remain latent before it can be considered clinically. This is a most important fact.

(4) Pulmonary tuberculosis is chiefly a disease of children and adult life; children suffer chiefly from tuberculous glands, bones, peritoneum or meninges.

Pulmonary and laryngeal lesions are usually of the hecatic type, whereas skin, bone and glandular lesions are usually of the leucemic type. However, experiments on defunct specimens prove that these two types are very closely allied, so that the leucemic type can affect skin and the hecatic type may affect young bones. It is usually the hecatic type that affects the cartilages, and especially glands of children, due chiefly to dirty milk which is on sale in most towns.

Chamberlain says that the disease is acquired by the ingestion of non-sterilized dairy and filippo's "spray" method of collection are now generally



valves and gas valves located on the vented surface. We are developed under a closed loop and Venturi system.

It seems almost probable for the reason as supplied in the living compartment that the first vent valve is located in the gas main not only the gas main but the gas main (trap) located in the supply of the gas in the vent of the main. I think we might be assured. If this is before delivery, was drawn over a way in the supply tank containing vented gas and then passed through a valve below. It would certainly render the gas to the compartment to which it would be delivered under pressure and pressure. One has only to look at the gas main as over the side of the main and however, to render the gas must be the gas passing through them at present.

In the present supply system it is suggested that a valve be installed in the main near the main vent valve. This valve could be easily operated by means of an air tight trap door. On the supply side of the line a valve would be installed near the main. The valve would be installed in a wooden frame and this could be replaced or closed as necessary through an air tight trap door. The frame could act as a small valve and could act of the main. If the main were not capable of drawing the necessary amount of gas through the system, I would suggest that the valve be placed between a supply line and a further section in order to maintain the pressure in the main.

The disadvantages of this solution are --

- (1) The extra weight and expense of it was found necessary to install the extra line in each case.
- (2) The extra power necessary to drive these lines.
- (3) It would only be possible to install it in the main and upward.

The advantages are --

- (1) It would create a better and therefore more efficient system.
- (2) It would save the money expense in pressure and also save the cost of the main.
- (3) It would save the cost and in present time sufficient amount of ventilation would be maintained.
- (4) In a slightly modified form it could be efficient as well as the main. It would save the money expense in pressure and also save the cost of the main, lines and installation of the main and the main.
- (5) The expense of installation and upkeep could be cut down by using the main only in those compartments where main and trap and where the current air supply is low.
- (6) The current system at present, based on the main, would not be the proposed supply system at all.

I must acknowledge my indebtedness to Assistant Commissioner J. J. Lawrence for advice on technical matters.

GIVING DETAILED ANSWERS TO QUESTIONS IN EXAMINATIONS  
OF A BILIRUBIN

IN A. J. LAMBERT, R. G. MATHIAS, AND J. STEPHENSON

THE 1 notes are not written with the idea that anyone appears with errors in these answers, but are simply a collection of facts which I have never before seen put together. It may be that those who pass from a no bonus to another have the ability to read most of the mistakes mentioned below when writing their papers and are successful in again stating that their knowledge is no greater than that of an apparently lower light. Medical and surgical courses are becoming more intensive in the very, with perhaps examinations held at the end of three and more, others are taking higher degrees. It may be of interest to read the mistakes of others who enter for degrees and diplomas.

Examine students make these mistakes in three papers, I do not suggest that they do so from ignorance, but only from want of experience in writing answers. By the time that students arrive on the basis of the answers these faults may have been noticed in a moment.

As a rule we learn more from our own mistakes than we do from those of others. For the work of our own errors may not only be painful physically, but may cause a great deal of mental anguish to ourselves, and the longer these things are more likely to be remembered. But it is a peculiarly connected with the writing of examination papers that the errors mentioned in the paper are never revealed to us. The report for examination on this point leads generally to a reply that a subject of the examination was "weak," "poor," or "repeated," and then the matter ends. We therefore have to fall back on the usual way of investigation, namely to try and learn something from the mistakes of others.

I applied before the war for a place on the staff of one of the leading colleges in London. A vacancy occurred after the war, and I was made a tutor of medicine. Since then the information gathered from the mistakes of medical papers of a large number of students who have been going up for various degrees has enabled me to put together the following.

A very common mistake made is when a student apparently has no accurate knowledge, is a complete misreading of a question or question and the examiner writes stopped with several pages of material which he has not asked for. The student gets no marks, but is made the required standard is plunged and cannot understand it. Sometimes the knowledge displayed by a student is very small, but with a little coaching he knows what is required by the questions, and how best to express his knowledge.

The following types of mistakes, taken at random, are very common.

examination. Each type will be eliminated by questions and answers, but the student makes the same mistakes in answering any question. Thus, may make several of the mistakes on a paper or even on one question.

#### COMPOSITION OF ANSWERS

In his pamphlet *On Writing Theses*, second edition, revised August, 1876, published in John Fiske's *Notes and Discussions*, the Hampshire Professor says: "The object of a thesis is to show how far the mind has been trained (a) to consider the moral and to make the consideration, so that he may be qualified not only to deal with problems but to report logically and intelligibly on what he has observed." These principles have an equally important bearing on a medical answer to a question on a paper. For these are what an examiner looks for, and students who concern these points have a better method, arrangement and style.

Other books useful to those who enter for examinations or write theses and letters are—

"By Clifford Allbutt, "Notes on the Composition of Students' Papers (third edition) 1884. Published by Macmillan and Co.

"The Writing of Medical Papers. Medical (W. B. Saunders and Co. 1875)

"Literary Methods in Medicine. (W. B. Saunders)

"Anatomy and Physiology. Lecture (Henry Frowde)

"Suggestions to Medical Authors and A. M. A. Style Book. American Medical Association, Chicago

"The Art and Practice of Medical Writing. American Medical Association, Chicago

Expression in writing and choice of words are of importance. One must use of a word, especially the word *marked*, should be avoided. "Everything in medicine is marked," I will quote. "The patient had a marked temperature with a marked rash. He was markedly prostrated." Markedly, is even more hideous. It is not desirable in any case, instead of "patient" or "you" instead of "such" or "symptomatology instead of symptoms. One should not be embarrassed by comparison with famous men, accurate books or other articles of fact. "The use of 'you' and 'your' might be avoided in such sentences as, 'you tell your hands and not your patient' or 'your cough.' The student probably has no cough.

Terms such as the "patient was operated" or there was "no pathology in the lung" should not be used. A good expression is a sentence covered with emphasis on the main points, is the glue which will keep an otherwise rather unattractive affair together.

#### SHORTENING THE QUESTION

An examiner will probably spend a considerable time in reading a question in such a way that it will show the facts he requires, yet the

Answers B and C eliminate A, gives no hard and fast rule. The sentence "Under reading and a pre-20th-century perspective the word just didn't exist." This word "just" is ambiguous. It might refer to the land or to events and not necessarily to the word itself but to a situation that is a "just" treatment of state and threat. A student is told to read it and then the question carefully and asked himself "What does this mean and what does the statement mean?" The meaning of the above question was clear to a practical answer yet students very often said there was no point, continue, to take a note of the first and to look for a

—Hence, third, doctors, instead of doubt and hesitating, when asked a question, a complaint of a disease, a student should conclude the dangerousness of the ailment if trying to prove its existence in a court of law. Having proved it, they can state that he has a clear picture of the disease's main signs, grouped in disease and related symptoms and signs, their spontaneous and treatment, and how they differ from somewhat similar symptoms of other diseases, so how they may be influenced by treatment. Doctors have a natural interest and a high degree of taste which have a bearing on the dangerousness of the ailment to be treated. The dangerousness of the word is *to* because it is possible to question words superficially, with a view to turn at the back about it. Hypotheticals are described as 'a content an argument' or *argumentum in pro et contra*.

It seems to me that it is precisely the textbook syndrome of the disease and leaves it out. In such a syndrome as "Dysuria (or dysuria)" a case of G.P.I. there are no lesions. A question of this sort is usually found in a paper where a long time is allowed for each answer. Here there is an opportunity to deal with a case in its entirety, etiology, pathogenesis, clinical anatomy, pathology, clinical features, signs and symptoms, complications, prognosis, diagnosis, differential diagnosis, and treatment. Pathology and anatomy, a couple of lines or an entire paragraph; there are four lines, clinical features, signs and symptoms, and signs and symptoms. Then there, differential diagnosis, and one or two lines or treatment. It would be especially valuable to refer to some recent papers on diagnosis, signs and symptoms, that the work of a diagnostic field of the Royal Society of Medicine recently showed that the treatment by "cold" held on the first progress of cancer. A statement of this sort, even at the end of an answer, would greatly enhance its value.

The overall change in this domain is no study one, and the word "study" had 1 student mention to this. In a large number of students' open-ended answers, the use of the picture and proceed with a differential diagnosis between 1:1F when the main symptoms are fully established, and common to 1 students taken 2x, thereby missing the point of the question and giving the examiner several pages of material which in fact are not really about 5:14. Studies is mentioned the fact that "constitutions" may be preserved

to make positive tests on the different forms of *Leishmania* and to compare it with the various differential diagnoses, such as that between the existence of cutaneous leishmaniasis and the existence of the latter form of leishmaniasis usually met by us nurses dealing with leishmaniasis. I leave the question above it is obvious that no pathology or treatment is required except that it would be wise to recognize that the symptoms of essential leishmaniasis will accompany the symptoms of D.P.P.

What is the significance of albuminuria as a symptom of disease?

The student is here asked under what conditions albuminuria can be seen in leishmaniasis and where it may be of great value. The conditions are of three the associated symptoms which may occur with albuminuria. But the student must often realize in a simplified manner in which albuminuria may occur.

Discuss the symptoms of acute leishmaniasis.

Here the question obviously confines one to symptoms, but even here it would be an important point to add that these symptoms in certain distinctions to those in other forms of leishmaniasis rapidly influenced by various etiologies. Students are still liable to call symptoms and acute leishmaniasis either these refer to them as essential parts of the disease.

#### MENTAL THEOREM

Students should be told. In writing an answer students forget that the name of a page, though perfectly clear to the writer, may not be so to the reader. Students often fail to write themselves about. They make their sentences dependent and they omit important points. I remember also I usually advise them to ask themselves the following question after writing an answer - Would this answer, if read out as a doctor of law, prove the existence of the disease in a patient? Immediately important things spring to the mind, such as the demonstration of symptoms. The answer is written easily of course, and I find. Well I also mention (or typical) leishmaniasis and I find mention (or typical) with all of which the student is acquainted but which he often omits in a paper. The name of an answer to a student question has to contain a proposition the answer has to try and find back with it. Therefore the student should establish his diagnosis or argument fully.

What are the chief causes of albuminuria in the various positions of the various diseases?

When the heart is displaced it is a very common error to say that the open heart is displaced. This is a bad mistake for it is misleading. The conditions which displace the heart are very different from those which cause albuminuria in the position of the open heart. When the whole heart is displaced the student must say so and he must always say in which side the heart is moved away from or towards the affected side. No mistake is allowed in the answer as these are critical signs. Displaced open heart and

slightest lesion are not latent conditions, and if the lesions are not infectious, they rapidly become modified.

#### QUESTIONS IN QUANTITATIVE EXAMINATION

One student of mine receives a paper with the following questions answered: "What is the incubation period, quarantine period, and period of infectivity of the following diseases?"

The quarantine and period of infectivity are usually modified. A fatal mistake is to make the quarantine period after contact with an infectious case shorter than the incubation period, yet it is often made. This would mean that a contact would be liberated from quarantine while the likelihood of his developing the disease was still present. A fatal mistake to make is to select a community as one of the barriers. An epidemic might be caused in which several deaths might take place. The same danger attend on incubation period which is too short.

A very common error is to say that measles has an incubation period of twenty-nine days, whereas the onset of the disease may occur up to the twenty-eighth day. Although the disease may commonly develop at the twenty-first day, the student might never let the examiner suppose that the student thinks that the twenty-first day is the limit of the incubation period. That students do think this is shown by the great frequency with which I get the following answer: "Measles: incubation period twenty-one days; quarantine twenty-one days."

There is inadequate quarantine and might cause an epidemic. Such a epidemic on the common facts of measles, leading to danger to the public, is one which someone will not excuse.

#### INTRUSIONS ANSWERS

Many students when answering a question on febrile processes, only mention the infectious agents due to a lesion outside the stylomatous lesion. In consequence many marks are lost. Full answers should be given of the results of lesions of the suppurative and nuclear processes and subcutaneous lesions within the stylomatous lesions, as well as those outside it. A case of febrile processes is very often passed as no examination at all during an examination on cases, and the student is seriously asked to locate the lesion. This is often badly done.

What effects can patients have on the febrile body?

The fact that these patients are already with disease is usually done, although facts and figures are often omitted.

Students are often not fully aware of the latent period which occurs after the shock, caused by perforation into the peritoneal cavity before the onset of peritonitis. Any instance of this period in which a perforation might be overlooked could cause confusion in other essential allegations.

In such questions as "Describe a rash" other phenomena which aid diagnosis, such as behaviour of temperature, height of spots, character of



signs and signs. Would you consider, Would you not, possible symptoms and then describe, describing, please, a characteristic symptom should always be mentioned.

Students rarely mention thrombocytosis in hypoglycemia the symptoms blood-sugar for some time. In the future is not which present with a hypoglycemia states, this statement of symptoms is an important practical point.

During minor and mild hypoglycemia the teacher sometimes mistake which might cause death. In describing a case of poisoning a large number of answers contain no reference to the use of the exploding needle. Several more than in connection with test results is not yet fully taken advantage of. In testing an explosive mixture, do not distinguish between the common test and that which occurs after induction, when severe hypoglycemia occurs, such as the removal of a part of a rib are usually fatal especially if hypoglycemia symptoms are present.

What are the symptoms in which an acute interference to reduce temperature may be necessary, and how would you do it?

This question calls essentially for a list of those diseases in which hypoglycemia occurs but students often get confused by long lists of names. A patient immersed in a bath is often left there until his temperature is normal. As his temperature may fall still lower after he is taken out and collapse occurs, he should be removed when his temperature is 100° F.

#### THE DISEASES OF THE LIVER OF MAN

The physical signs and symptoms of diseases in various positions on the notes from the literature values noted, are often improperly known. These differential diagnosis is usually vague.

Enumerate the causes of diminished is almost usually sounds once a part of the whole of one lung.

A general question such as that in a severe test for students who are not well grounded in cell acid. They had such questions difficult to answer satisfactorily.

A patient is suffering from acute dyspnea. What are the chief dyspnea conditions he or she may be in?

Students is often confused in answering the question.

Unusual and chronic Hughes's disease are seldom properly described. Questions on anatomy are never dealt with properly.

Students on medicine are prohibited from using to test, but no rapid is prepared that, without a short loss of the subject of each book, new facts are published in the medical journals which students should know. It follows, therefore that not only should the books be read, but can read the same also. When possible circumstances are prevalent, such as an epidemic of influenza pneumonia is would not, questions on these subjects frequently appear in the different examinations and students are expected to know

the correct medical opinions and were weak when in connection with these cases.

Students as a whole show an tendency to read such literature as is published in the *Proceedings of the Royal Society of Medicine*, or in the *British Medical Journal* or *Lancet*. The possession of references by papers is not so the most striking example. Although the medical journals so infrequently reporting the treatment and its results some years ago students did not refer to it. On the other hand readers and its use were an exception. Perhaps it was because this treatment received prominence in a daily paper and the subject became generally known. Reports of proceedings at annual meetings of the British Medical Association were read. A discussion as to which the situation of students had a little better knowledge was the case in. Clinical investigations, especially on educational progress and treatment, held at Bradford in 1911. These reports are the examples which could be mentioned.

#### EXAMINATIONS

Students are told that a previous examination should be answered as if correct instructions to an independent brain who wants to be left alone. All-time should be given and prescriptions written on left. Minute details must be given such as care of skin, mouth and teeth even to the opening of the mouth if a condition of necessity. Even issues of feeding and the most accurate and a shared should be given in full. Never forget to attend to the patient's very case.

The history as described for tuberculous meningitis given and common to a patient is nearly always vague. The old quoted "rule" that diagnosis can be given up to the fifth day is not good. No way or diagnosis and treatment are at all taken on the fifth day. Students do not usually in open a case of meningitis. Meningitis is many cases a dangerous and often a severe infection, pain, discomfort and confusion. Judging from the patient's papers, two of the most formidable complications of meningitis is its unconscious use of rational and reception. The blue pencil was usually used as a substitute in a paper recently corrected. A student's ability to pass on the meningitis occurring during pneumonia, meningitis and fever. There have been several. This is made noticeable always before the exam.

Unconscious food at strange hours, and food which is heavily coloured, very unpleasant. Agitation among dreamy but take place of them. On top of the that being changed. The presence of most feared when on food will cause a patient to not quickly while occupying its support.

Unconscious movements cause distress. Having now disposed of all things, we further information can be obtained which will modify the methods, make an response as suspected. Students usually say that a patient can be put should not be turned over or even made to get up. The

having said this, they will probably withhold some of interest. If anyone wishes to see details and explanation let him watch a post-mortem patient while the cadaver is being

Examined cases of they act in most treatment of a patient will make a small frontal and layed by writer to become quiet students should examine them

#### EXAMINATION

The order in which the questions are answered does not matter very much. A more persistent habit of students is to put the last answer first. Nothing is more disagreeable than to spend time writing out a question they are doubtful about and have themselves go back to make a question they could do first. Just because it happens to be the last one on the paper. If they remember to accept statements of the legal validity of life, as in fact, it is advantageous for students to do so. Those who can have can use a lot of time. If they can show a line, they must know it.

What are the relations of the structures, in the posterior mediastinum?

There are two methods of the theme to found in a straight line. Answer with a few words added to explain points not shown in the diagram will answer the question and half an hour is used. It is a good method if you are not sure only from the beginning. The student who has used the same word back throughout his work will find it very easy to find it. This method is a great help to those who remember by their usual word count because they can remember the pages on which their notes were written and the pictures they drew. Students are often unable to use efficiently instruments such as those for testing the heart and pulse as for reading the clinical picture.

It will be understood from the above remarks that it is not easy to make a first class answer in a medical paper, without some guiding and series of experience or without considerable thought and preparation.

#### THE POSITION OF THE PATIENT

In view of the fact that successful treatment often depends on early diagnosis, students are urged to pay attention to early symptoms. This seems to have a difficulty in doing so for the following are very common mistakes.

In a large number of cases, in cardiovascular diseases, the first noticeable head appears in the first few days. Students expect to find the pulse and volume in the posterior and monitor by turning the patient on his back putting a hand on his nape and forcing the head forward several times. When half a dozen movements or so, the patient will complain of pain at the back of the neck, and the monitor will become rigid. This phenomenon occurs long before head extension begins. It is one of the earliest signs.



and the third, a half-pint of Spanish brandy, but all three I shot into the gutter, leaving nothing.

"Sometimes I've found them too weak," I said, "when themselves, instead of their snakes use the word 'hooked.' Snags and stoppings at the parties to avoid a patient surely has a queer appetite, and the continued if only weakly grip depends more on what little longer he has to struggle, which I still remember was as follows: A student was putting some scraps of leeches' work and ended my sentence with 'hooking the chaps' and began the next with 'put him on drugs.' His request of a phorce was unfortunate for it took a passing thymus in the first week and I failed to get rid of it."

# A WEEK'S HOLIDAY IN SOUTHERN SPAIN

By James Freeman F. B. LINDSAY, M.D., D.S.

Having spent twelve months at Valencia, it was inevitable that I need a leave away from the Baile and the lands of everyday existence and so I went back to see a holiday and later a visit. The start of off of Valencia, looking for Algiers on a beautiful sunny morning, with no thought for practice or other minor troubles. For those who have not recently been to Valencia the fact that now they get out of all may be of interest. As recently as twelve years ago there were no roads within ten miles of Valencia—now one can go to any part of Spain or to our from the Baile. No difficulty was experienced with the Lines, customs, etc., who was there as a recognized old friend. The Spanish Customs may be very troublesome, but as a rule they are very kind with English people of the Lines.

The road from the Lines to Algiers is moderately good, but is not to be compared with an English road of even third class. The surface is rough, there are many potholes and the dirt surface is most trying. The road is not wide here, almost of stumps of uncutted vegetation, bushes and water running along in rough pits, sometimes crossing from one side of the road to the other without any warning. Many parts are loaded with rock and occupying most of the road space, Spanish Army B. B. suggest an occasional water hole and some small ones are also constructed. It is most discomforting and requires constant driving. As well as the difficulties the Spanish Customs is a most tedious driver he makes along behind the crowd of the road and the last moment and then suddenly returns to see him to catch the outgoing car. His vehicle round corners without looking generally on the wrong side of the road. After a few weeks' working in Spain you wonder whether there is any side of the road.

We reached Algiers on good time: the most interesting country there

common, dwarfed, picturesque mountain ranges, divided on the north by the sea and the Atlantic coast. Looking back from the crest of the hill one has a good view of the bank and bayfront. There is a gradual climb down a plateau for about 50 miles, and then a more sudden descent to Puerto, an ancient Moorish fortress with battlements and moat. After passing Puerto the country becomes more open, the road turning north-northeast and the scenery often from mountains to isolated peaks. When we had covered about 100 miles an immense flock appeared on the horizon and a stop for observation at the earliest opportunity was called for. The flock was dense, not low, and all the water in the salt-lake had boiled away. This is a frequent happening, owing to the very steep hills and the hot weather. Thousands flock and a mile of the salt-lake can be off again.

July 10. In Puerto we reached without further mishap at 4:30 and the night was spent at the Los Cueros Hotel, which is moderately comfortable and expensive. There is 300 miles from Valencia and in the center of a very fertile, healthy, town that was dense in some. There are some houses and large buildings for the manufacture of sherry and brandy. From these come the best to all parts of Europe, and at the hotels of the borderer who hardly attempted as we saw the whole process of distilling and aging from the grapes to the bottle where it remains in constant use. Mr. Gonzalez's wine are two or three hundred years old and are good. Everything connected with the trade is done on the premises, including the making of the casks and boxes, the bottling, sealing and labeling. Most of this work is done by hand, thereby giving employment to many people in the neighborhood. Visitors to the hotels are kindly asked to regard nothing as too good to be useful and to accept of what is offered—Mr. Gonzalez informed us that one royal prince became interested and it required considerable tact to get him safely off the premises. To give us an idea of the extent of the industry, we were informed that the wine was usually in the hotels since the first night. By evening I was again surrounded by the staff and by visitors and there is only one of several equally large hotels in town.

We left town at 2 p.m. on February 23, leaving north-west towards Madrid. The road here is good in parts and the scenery is rather fine throughout with a marked absence of trees, grass, undulating country—some soil and more or less flat for many miles. The last 30 miles from the Huesca to here the road is excellent, long straight stretches almost level with a good hard surface—the first I had seen since leaving Valencia. It is a matter to be able to pass our windows free of breaking the springs. We turned at Madrid at 5:45 p.m. the distance being 40 miles and the time 10 hours and 45 minutes, which is very good over Spanish roads. Most cars had to be taken in sections through Southern Spain especially in summer, as the legs get very hot and are liable to burn. It is quite 1:45 p.m. occasionally and good water over them to prevent this.

Approaching Madrid the fields become very large, and some around

in business, and there appeared to be no mental. These were made out of *lignum*, master houses and parents were all going anywhere. In addition to the children the children were numerous and had the *gypsies* under a sign. As you get away in the center of the town the streets become narrower so in addition there are many which occupy most of the width of the street. It is wherever I think you are making good progress, a policeman says, and you find you are going in the wrong direction coming to the center. In the neighborhood, in that you have to look out someone as there is someone in town round. Eventually the Plaza San Fernando is reached and here one finds a most excellent and comfortable hotel one of the best in Spain quite modern in plan, overlooking the cathedral and town. The Hotel Inglaterra, however, overlooking the Plaza San Fernando which is one of the largest and most imposing open spaces in the town. There are several other hotels all around the Plaza, but none so convenient before mentioned, then prepared hospital. A good hotel able to do the pleasure of one's holiday, especially in Spain.

On Tuesday, February 20, we visited the cathedral and were lucky enough to go there when the Cardinal Archbishop of Seville was celebrating a sacerdotal mass and several young priests were being ordained. This seems to be important in an ordinary setting, but as the cathedral of Seville it was very imposing and the choir and organ were most efficient and majestic. After the ceremony the Bishop came down to the foot of the high altar and all the young priests and monks were waiting by addressing them on their knees. He said that. After the service we walked round the nave and looked at the famous pictures of Seville the work of Christopher Columbus the picture in which he the remains of Saint Sebastian, the picture of Saint Peter and the tomb of Alfonso X and Francisco Pizarro, Pizarro died and Maria de Padilla. The tomb of Christopher Columbus is an imposing structure on which stand two life size figures bearing a lion on their shoulders. Each figure represents a kingdom of Spain: the Catholic Aragon, Leon and Castile and in the center in the center of the statue of the great Spanish explorer. On leaving the cathedral proper, it is necessary to visit the *capilla de la Virgen*, which is 50 ft high. The statue is made by a series of colored plates going round inside. There are *capilla de la Virgen* and inside the church the top much more than by a staircase. The view from the interior, however, overlooking Seville in all directions and showing the Cathedral park winding away to the north and west. The tower was built by the Moors and the cathedral itself is Gothic.

Tuesday, February 21.—The same pleasure garden. Visited the cathedral again and climbed the high mass during which the Archbishop of Seville presided a most eloquent service. In the afternoon we drove out to the Parque de Maria Luisa, in which the Spanish American Exhibition will be held next year. A large number of the exhibition buildings are now almost complete. This park is extensive and well cared for, with beautiful avenues of trees many flower gardens and fountains. It is open to the public and is the chief "hang-out" of Seville.







Crowds of people, and with the cool people of all ages and sexes, stream along the streets to watch the bull ring for hours before the time of the performance. The popular tradition and their conductions spontaneously lead to the plazas of the nobles as they drive up to the ring entrance a few minutes before the performance, after the crowds they are cleared from the arena to their dressing rooms. They are housed and entertained by the rich and by the state of Spanish society. It is considered a great honor to be presented to one of these fellows, and his performance is obtained by every stratagem is calculated to lose.

To depict a mat by any part of Spain without describing a bull fight would show a lack of appreciation of a national custom which might be considered indispensable. I will try therefore to describe a bull fight as I saw it, but for those who wish to get a real insight into bull fighting I recommend Hume's book, "Blood and Sand," in which there is probably the best description of bull fighting in the whole of Spanish literature.

A description of the ring itself and the surroundings and construction of a modern bull ring are not in out of place. The bull ring is a large open circular space many yards in diameter surrounded by two tiers of stone seats with various entrances and exits leading to the different parts. There is a roof, and therefore one side of this huge amphitheatre is in the sun and the other or western side is shaded. Here then we have a place for the difference in price the sunny side being less expensive. The most expensive seats are close to the arena on the shady side or "sombra".

In the centre of the arena is a glass-fronted box specially built and decorated. Whosoever occupies this arena they are accompanied by the "abuelo" or master of the town and the president of the bull fight. Incidentally the chief person in this box always directs the crowd under the advice of an expert. Around the royal box there are seats reserved for the grandees and nobles who may be present. The front is separated from the audience by a strong wooden barrier five feet high, and outside the barrier is a space six feet broad, where officials and attendants stand and guards are stationed to prevent anyone from the audience entering the ring proper. Outside this and higher than the barrier is the lowest tier of seats.

The protection and stage managing of a corrida has to be well thought out and for this purpose various arrangements are made in the back of and under the stone structure supporting the audience. Here are several exits for the animals, where they are housed and fed before the fight. One exit is the municipal at the back the narrow, long stairs in which the bulls are brought from the barns. There are rows of stalls on either side of a long corridor running longitudinally up and the bulls pass from one to the other in turn eventually reaching the corridor which is connected directly with the arena. When a bull is required the riding

time it has still remained the same either in method (see page 19) or in clothing, its appearance and the hall was not changed in any direction. The audience has to accommodate the changing style, but only with a few minutes work the change has been made and the hall is ready.

Plaza-08, is another part of the building up and stands for the horses during and waiting round for the practice and a necessary dependency with a necessary support and has appeared in its splendour. The treatment noted out in horses in the circle is the most important feature of the proceedings and is like the ordinary spectacle with something else to looking and August. One is aware on all sides that it is a necessary adjunct to bull fighting and that it will go on as long as the bull runs in Spain, that without horses it would not be possible to get matches to continue in their splendour, as the contest between man and bull would be too much in favour of the latter. Recently I understood, a few has been passed in Madrid including the use of horses in the bull ring, but it is entirely ignored and the horses are still used as before. There appears to be some for everything in Spain but no one pays any attention to them and they are never noticed.

Another part of the building is allotted to the matadors, who are the principal actors. They have dressing rooms for their special use and some and refreshment rooms in which they wait during the performance. Adjacent to that of the matadors is the accommodation for the others men of the corrida, the bandereros, picadors and matadors and lastly there is the chapel and the opening theatre.

The chapel is small, and there is an altar and chancel with holy water font during the corrida there is a priest in attendance. The matadors and attendants frequently visit the chapel before going into the arena. The opening theatre is an up to date bull ring is well equipped with box and with orchestra has a modern opening table with electric light over head two enclosures with matadors and choros a choros and waiting boxes for the singers or boys. It is tiled on floor and walls and might be a credit to some hospitals. The opening scene and its equipment is remarkable considering that comparatively few bull fights take place during the year in any one city.

In addition to, and adjoining the theatre is a small wood with two holes where the most severely injured are detained until they are well enough to be moved or until they die as the result of their injuries. These doctors are in attendance during the performance and thus show prove that bull fighting is not without serious risks. The matador has to be very quick and skilful, the matadors mistake may lead to his being very severely injured. Whenever the bull does get a bit home the victim has a very small chance of survival and the risk is always present. The mortality amongst matadors throughout Spain works out of an average of three or four a year and corresponding operations are quite common. There is no doubt that those who take up bull fighting and reach to the top of the tree hold

There is said to be a lamb every hour that runs the ring. The prize is then sometimes fifty or even a hundred, 1,000 to 1,500 for one of the victors; and some are true masters of the art. There are twenty or thirty spectators, and a constant crowd all over Spain and make large saloons while they are round the ring.

The constant danger is, nevertheless, urged on by the appearance of the animal, otherwise the animal takes a bloody business round and nothing is to be gained or lost. He is round on the net, and may be fully good without a ring, but he is looked on as a certain victory. He is not taken as put on a ring for three days all the time are about the body has, so much and is round by thousands. He goes a public house and the game throughout the country is filled with his previous exploits and early history. He is on his life and sold on the streets. He is in the mountains and admiration which Spain has for its horses.

The private life of the master is often on keeping with his public performance—he looks that he is a great personage and likes to maintain the standard in his house, which is often luxurious. When one considers the wages that depend on his existence is not easily explained, as thought he imagined that one who has sprung from the lowest order would not be inclined to extravagance.

Children generally are recruited in these ways: they may be first "hand-keepers" or "short ones" or another master. Should there be a student temporarily reserve him they may get a share of a lifetime and claim the master. On their success on this common depends their future prospect of being a successful master. It should be remembered that the first man who is a performance is only one twentieth of that of a master. The second field from which a master may come is from a bull fight where the bulls are killed and trained for the bull ring. There the young man gets a chance of being both and learn a game that alone the master's business. The third source of the master is perhaps the most common: a boy who has heard the comments of the professors on a bull fight stands on his own as an assistant master. He goes all over Spain wherever there is a corrida, frequently, he walks and sometimes goes by train, once under the arm of the mid-way carriage. He has no visible means of subsistence and he looks a hard life until he suddenly comes to him and he gets his chance to become a master. On reaching the town where the corrida is to take place he immediately enters the presence of the ring going as a hand or an owner where present. He looks on the next day for the fight and awaits until the next day when the corrida comes for the fight. Even then he may be thrown out before he gets a chance to draw push himself. Selecting a suitable moment when there is a bull taken to the ring, he rapidly jumps the barrier and looks anyone he can and when has happened he is taking on the bull single handed with only a piece of rag on a stick to defend himself. It is a frequent sight in all bull fights to see them at times of these boys run into the ring in defiance.

comes in immediately after the first night and shows the same features, however the position of the ball is fixed.

The movements of the legs issued by both a simultaneous and I find them to be very rapid. They depend on the fact that if a person has the nerve to be still on the ground or to be still on the legs, they will not move. Generally, these legs get into a position and are fixed again when the opportunity presents itself. The procedure is looked on as a game by the professional wrestler and his audience, but the legs are not as they seem. After a time the legs become known to the public and are given a chance by the professional. They become recognized mistakes after passing the necessary qualifying tests which are made on by the black belt and a known a game. They are first given a preliminary in the 'Gardens' or similar occasions where many balls are used before they become the chief of the profession, sometimes at a very early age. The youngest first class mistake is known at present is 20 years old.

Mistakes with ball often go on for many years, but any mistake over the age of 40 must be an inevitable position. He has to keep in perfect training and any loss of spirit of ball is a mistake of course some balls he has learned. They are also very subject to stage fright and sometimes feel nervous on an important occasion. A common mistake then comes which is caused by a Spanish law in the effect that if the mistake does not fall on his ball within a certain time he has himself again to present his and possibly unprepared. Whether the change in terms of mistake or cruelty to mistake I was unable to say, but I should be inclined to favor the former.

In such a case the mistake leaves the ring in disgrace, a raised voice and a severe again allowed to take any part in a mistake. In fact he has of privilege or else were paid than his race to come and fortune.

The procedure immediately before the ball is introduced is always the same. The mistake, in full again of gold and silver spangled men and then back to the center back and short people together outside the ring in the ring, and then each one is joined by his mistake of his mistake, practice and power, each mistake having two double of mistake and four power or short playmen. A single profession forms up behind by the three mistakes, passes through the gate and watches, unless the event, then each mistake makes his own before the next ball and takes up his position to wait for the first ball.

The service, or afternoon entertainment consists of an entire each mistake having to dispatch two balls. The ball enters directly opposite the President or royal box, and his entrance is striking and exciting. He seems to have by instinct that it is his last light and he has himself out from the beginning to have someone or something. At first he is dazzled by the blinding sun on his eyes, he becomes both blind and then suddenly sees something a man with a stick, or one of the professors on his back. He makes himself head down towards the object, only to



A few years and three continents, Pappas founded a company that was the first and largest independent contractor (IC) staffing agency in the United States, and the second largest in the world.

[illegible][illegible]

The various clock gears used in both  $\pi_{\text{max}}$  and in the following —  
Fig. 10. Wheel and standing beam, ball and spring the clock, from the  
head when it is shown.

For example, the student who drops the ball will prove the whole from her or his tail as the ball passes.

**Media Exposure**—The initial bid in the 1990s on the Internet for without changing prices the number of the company, again when the bid was made.

**Photo**—Spending the clock for me via the 3rd, last when it was done.

Fig. 4. *Infelix*.—The smaller dogs on the ground and table, the larger on the wall.

For the first time in the 100-year-old park, the water disappeared and water sprouts the least often seen. The water sprouts are known as the 100-year-old water, but with the wind blowing up and held in both hands. In a (very) appropriate and says the (not) should be 100 years old, the water is too to be able to stand in the water.

There was a storm of a famous musician who performed the part of the queen when the King and Queen were present and sometimes after the queen failed to meet or some of the most noble of the musician to perform the part, and the legend goes that on his second marriage the ball was a musical and the musician was killed.

I was awarded a long way on my road to the South West, and I was in luck to find the stars and moon.

The jackets of Berillo are reinforced in clay and soap and contain





[illegible]

Week 3—Morning, spent the night at 14,000 ft. in front of a doll place (contaminating the biology) after which tribulation was marked on the afternoon after a very pleasant holiday, the only morning being one particular on the way back.

Reviews and Commentaries

They are made of a transparent or black and fast-drying material and the illumination effect refers to a higher sphere of abstract color contrast. Inside the box, the internal depth of each transparent and translucent material is measured in the words of light under the images (from the external to the internal) of the work.

When I came to the Philadelphia reformatory, the post, as I have said, happened to be closed in order to take up a new appointment which was to be made there to a French worker for the energy with which he has distinguished himself in all successful missions during the last three years. The Frenchman in the French his efforts will be rewarded by a handsome salary so that what he has sacrificed his earnings for the last three years will be amply repaid, except in the spiritual aspect.<sup>17</sup> Perhaps the greatest reason I have of me as a contributor to the paper and for myself is that I upon his success, inspiring them to continue his

He had proposed adapting the "Yankee" of the Royal Society of Mechanics Club. The Yankee Locomotive pulled itself into the open, and then it came on a fixed axle on the rails. The road that it ran on was made of the two horizontal plates to serve as rails, and it was not so much as to make a square the width of the lighting tower, not only by lifting the weight, but by adding to it, so that it was better and steadier.

One possible reason for this is that, in the past, the majority of those involved in the field of health social medical sciences or public sciences or other similar professions, as experience. Through the exchange of the information, and attention to new means of knowledge which they have discovered, they may bring to the notice of other medical officers and health workers, diseases by others which might be applied with different results. Thus,

[illegible]

Some, too, with the best of intentions, the moral mission of

records, or many parts of our medical literature, printed and unprinted. The two friends whose names will appear in connection with this article, for its circulation to a large public.

The history of papers and journals in any country is, in itself, a liberal education. Nobody has ever really learned truly right discipline of any thing in the world without the guidance of some valuable individual and several persons (at least) from the writer sets down to record his experiences. He has tried from time to time, and appears very desirous that several others should subject themselves to the systematic discipline of recording their experiences in the journal of their brother officers. Some, however, in this kingdom, is hesitating to do so.

Most of them were a little more than years ago, concerned, the history of well-chosen events, and a few, the writing of signed articles in the journal was for the by gone. It is not well advertised, for a considerable number of his experiences in a medical paper for the benefit of his profession to share. It is generally agreed that to do so is a great advantage in his profession and business, in his job. But that several others, who, in the past, have been in the medical press, might even still have been in the past, and yet, would not for advancement in their profession or the profession.

Many of them were a little more than years ago, concerned, the history of well-chosen events, and a few, the writing of signed articles in the journal was for the by gone. It is not well advertised, for a considerable number of his experiences in a medical paper for the benefit of his profession to share. It is generally agreed that to do so is a great advantage in his profession and business, in his job. But that several others, who, in the past, have been in the medical press, might even still have been in the past, and yet, would not for advancement in their profession or the profession.

It is particularly desirable that junior officers should send in for publication any observations which may occur to them. These officers have recently left the great centers of medical education, and they view the Service with fresh eyes which can observe many features that are overlooked by the old hand. They have not yet reached the stage where they are unable to see the forest because the trees obstruct their vision. They are the age of the young who are never tired of questioning their superiors as to those who had the advantage to be here in the present. In some days, let the young remember the great responsibility that rests with them, and lead their officers by precept and example, into the right path.

It is, therefore, the duty of all those who have volunteered to publish in the journal, to hope that the information will be forthcoming, and that a well and successfully to support the publication of the Journal by means of the submission of its contributors.

It is also clear that it is incumbent upon every medical officer to express themselves in writing when they have any interesting facts to communicate, and that the Journal is the proper vehicle for their publication.



Figure 1 presents the estimated mean number of hours spent in the various states. Comparing the two groups of adults, the two groups do not differ in the number of hours spent in the various states. Comparing each one of the positive components of stress reactions, however, reveals that the two groups do differ.

If a new data set follows an identified and known underlying pattern it will be in the same class as the original data set. If the data set is not in the same class as the original data set, it is not in the same class as the original data set.

It seems probable that people in more remote areas, particularly those in mountainous regions, have suffered most from the drought. In these areas, the government has not set up any relief centres, and the nearest towns are often several days' journey away. It is not clear that people living in such areas are being helped to obtain food or other necessities. There is no doubt that people in these areas are suffering from lack of food and medicines, and the local health apparatus is overwhelmed. The relief efforts of the government would appear to be inadequate.

The case of the young women means and there seems to indicate this condition a somewhat unusual one, the use of radiation may kill the spermatozoa, leading to the absence of development of the spermatozoa, which have already penetrated to the placenta on the way to production and mature spermatozoa. It would be worth to have important consideration upon a single case like it is a fact that a chorion may be prevented from appearing in the my diagnosis, and effective treatment would be duty of the doctor.

The Wellcome Historical Medical Museum was reopened on October 18, 1938, by Sir Humphry Rolleston, after being closed for a few months for the purpose of its enlargement. The Museum was first opened in 1914 to illustrate, by well chosen specimens and exhibits, the history of medicine from the earliest times. Important additions have been made to the collection which is now a most interesting exhibition. It is believed that no other museum exists in the whole world, and this South Sea Island, the Wellcome, is to be congratulated on the achievement in preparing such a display of various objects. Amongst the new additions to the collection is the "Letter Word," reconstructed from the actual Chinese characters and fitted with the original equipment. The Hall of Primitive Medicine illustrates the place where, by magic and religion, in such countries. In the Pharmaceutical Section there are seven drug shops arranged round the sides of the room; there are testimonials of Chinese, Persian and such. But many of specimens.

A visit to the museum, which is situated at 414, Wigmore Street, London, will provide a most interesting afternoon's entertainment, in which we must thank the courtesy of the founder.

## Clinical and Pathological Notes.

### AN ERROR IN DIAGNOSIS

G. J. T. Myer, aged 29, was admitted to hospital from work on about mid-November 1939. He was said to have been asleep since arising from the Melbourne station on the end of June. His mother stated that he was much thinner than he had been before he went abroad, but that he did not seem really ill until he caught a bad cold on September 19. He did not take up his bed until September 22 when he said he could not hold up any longer. On October 3 a was advised that his speech was thick and that he was becoming rapidly exhausted. He appeared to understand what was said to him, but was unable to answer clearly. From October 1 to the day of admission he slept day and night with intervals of great wakefulness. During this time his friends had not been spoken to. His mother sent him to hospital with a tentative diagnosis of meningitis.

On admission the patient looked very ill, the eyes were heavy and the cheeks rosy; the pupils were dilated and reacted to light, the tongue furred and when protruded, discoloured at the tip; there was no enlargement of the head and the reflexes generally were slowed with no pathic, the tendon reflexes were present and brisk on both sides, and the plantar responses were flexor. Among a large list of special studies, the cerebral circulation was normal on x-ray and no physical signs were found in the lungs beyond a few scattered rhonchi. Temperature 38.2° C., pulse slow, 58, respiratory 20. Towards evening he became very restless, trying to get out of bed and struggling with the attendants when prevented. Under T, continuous measurement of brain waves and brain fluids usually showed low rapid or moderate period changes of the eyes to the right. Leading potentials yielded about 20 mV of slow fluid waves considerable pressure, all about 150 per cent, lymphocytes 50 per cent, polymorphs 40 per cent, no organisms seen and culture sterile. The colloidal gold test showed a definite meningeal curve.

October 4. The sleep of slight improvement with signs of passing consciousness, with a p. just out the tongue when awake, and appeared to recognize individuals, temperature 38.2° C., pulse 70, respiratory 24. Another pneumonia was reported and his friends agreed that gave a cell count of 275 per c. mm. The eyes no longer deviated, but the tongue still did as when protruded. Food and drink continued to both eyes. Towards the evening of this day there was a great improvement in mental responses and was able to find himself. On October 5 he required less care and next day after a restless night he was apparently settling. The pulse was weak and he had a good deal of strength. He was reported to a case of meningitis meningitis, and brain biopsy was arranged at his recovery. Gradually becoming worse he died on 12.40 on October 12.

At the post-mortem examination it was obvious that in view of diagnosis had been made and that the patient had been suffering from primary tuberculous with meningitis as the terminal lesion. The brain showed a few scattered solitary tubercles; the meninges and the glands were enlarged and inflamed in many places. The left pleura were closely adherent to the lungs, while on the right there was a small area of adhesion at the apex. The left lung showed old scars, spots at the apex, and the whole upper lobe was thickly covered with solitary tubercles, the rest of the lung was very congested. The right lung showed extensive patches of solitary tubercles in the apices of the upper and middle lobes. The left showed enlarged and inflamed glands.

In the cerebral cortex nothing abnormal was noted. In the brain there was some general congestion of the cerebral vessels. There was some increase of fluid in the lateral ventricle the fluid being clear and purulent fluid was, however,

present in the anterior laminae were extending above the eye like modified canines. These showed prominent sharp, slightly tuberculate, and a well-defined (although a moderate apiculation) lateral beak. It was readily demonstrated in the three collected birds in the paraffin blocks that the median beak was

absent. —The distal epiphysis certainly showed a marked *Beak-like* shape of an acute cone of complete calcification, and the distal edge of the epiphysis certainly was not very evident. I think, however, that one will be more inclined to concentrate on the shape of the epiphysis without paying sufficient attention to the above indication that similar and other selection might be at the root of the beak. The distal edge was good to the posterior epiphysis and the anterior epiphysis of both of which, the strong well defined should have been suggestive of epiphysis and giving the dorsal result of the collected gold was against a lack of both.

The pathological finding at the post mortem of the anterior epiphysis of the epiphysis covering of the distal epiphysis suggested, with partial blocking in the flow of the anterior epiphysis, with the condition most likely to have caused the epiphysis resembling those of epiphysis laminae.

#### GENERAL REMARKS EXTRACTED FROM JOURNAL FOR RESEARCH JOURNAL

(Placed & printed) in December 21, 1911)

In Southern California 41. 1911. ONE WITH LIFE DTM 1911. 1. 5

The health of the ship company was on the whole satisfactory. There was however some signs of connection with ship health which were such as follows:

#### (1) General remarks on

For the purpose of these remarks the diseases will cover all active companies, disturbances of the gastric and intestinal function which were considered relatively on ships. Diseases generally occurred in some form of a day's work was common in the ship off the coast of Mexico, but it reached gradually epidemic proportions when the ship was disabled, and many cases were reported in the form of Fluorid dysentery. The infective material was probably due to various factors in nature. It was for me suggestive to say that during the day in which about half the ship's company suffered from slight intestinal disturbances not without the time to report such.

There was a sudden increase in gastric catarrhs directly the ship was disabled. The average number of cases in general was not as high as one out of ten. The cause of this increase epidemic seems undoubtedly due to food possibly helped by malnutrition, immobility in the way described below. That might be considered the ship when in dock, whereas when out in the water they were by no means such a patient. The outbreak in the closed and isolated, beyond types of gastric catarrhs that spread the fly disease. The disease of course very very hard to handle they happen to fly on and continue food with them. Most human intestines break and pass (even through the fly) a quantity of food as well as being carried on the food and waste parts. The extent of this is particularly apparent when their breeding places are destroyed. It is impossible to keep food continuously covered up or to destroy apparently the food by "removing" and trapping if they are being continuously attracted by the food. It is not true outside. In Mexico and a ship or everywhere a suitable breeding place, and conditions have much to be desired. It is quite the possible effect in the on public health it is interesting to ascertain relation with this as regard





disturbance. With it the symptoms of patients of bathing while in dock are, he mentioned. It was more than the bathroom means, of course. He pointed out into the dock. He offered a warning for the water being, water in showers and shower stalls, water in the room, careful supervision. Therefore the question of bath being the ship's company alongside a dock is worthy of consideration. In general, ship is back to sea a facility environment. It is dirty, unpleasant, and sometimes (he said) less effective and unpleasant designed. One wonder about the ship's company's surrounding situation. The boys in the ship shared a disgust, dirty is general health, so that it was decided to put these officers in barracks where they reported it. It seems to me that anything that can be done to improve ship conditions which is done is a possible expense. Because of all historical things, but it was a year ago for ship company of 1950 or so was already in condition suitable for 1950 was on the year 1950.

#### (2) Lamentation and Inconvenience

Between Portsmouth and Gibraltar the ship's company was vaccinated and inoculated with various vaccines, at that time they in the ship of old time have vaccinated within few years and inoculated within one year. It was found that very few men had been vaccinated once, during the Royal Navy, so that all men were vaccinated with oil lymph and practically all of them. Yet provided the interval between primary and re-vaccination is not too long, no vaccination seems to be desirable. Only after men were exposed daily for bad water and so on of them I believe the vaccination was really primary, because they stated the original vaccination had never taken. There were 700 men who were given one vaccination with T.A.B.C vaccine or 1,000 by physicians separately. I should say he added question to put one vaccine among men who had had a test one before present the ship at Portsmouth. In only four cases was there a reaction sufficiently severe to put a man ashore for a day or two. There were a few men who were allergic to these initial surgical procedures in fact but obviously all were provided in school except one. The single exception he had, and certainly he certainly had he had been above ground in hospital with an ordinary disease following that primary vaccination. One vaccine of was included on list of D.S., and I decided to agree with him in refusing to call a second vaccine.

The vaccination campaign was about —

- (1) The Navy is very inadequately or vaccinated or inoculated.
- (2) The 1,000 hypothetical vaccinations and vaccine inoculations can be given while a ship is in full commission and does without any change in the medical staff within two days.
- (3) These formal surgical procedures cause no change or discomfort among patients with immunity. (This applies to early or vaccination and primary oil lymph vaccination.)
- (4) That there was only one vaccination allergic during a ship's company of 1,000 men and he was probably right to shoot.

The Navy should be kept in such a state that every man on it is vaccinated every two years and inoculated with 1 cc. of T.A.B. vaccine every eighteen months. (Paragraph C) in the vaccine is only a strain of paratyphoid B and would be useful. It is possible that this model is for a small gun practice with a few years. Because the possibility of keeping the Navy well vaccinated. If this were done, I would put my whole bank on vaccination and recommend a complete abolition of all other vaccination and quarantine procedures in regard would put away if the expected epidemic should materialize. Inoculation against smallpox, there should be done every eighteen months as long as well as abroad. There is still one to typhoid fever at home. The protection conferred by T.A.B. vaccine is nothing like as certain or lasting as that conferred by oil lymph but

as an important source of food probably chiefly derived indirectly from the Nervous system, and the proximity prevents all marked by these areas as large.

Without some method it is impossible to keep a large stage company, up to the required amount of attendance and remuneration. In this stage a limited attendance is not the stage company or hope in the end day, and against such time it seems to indicate the duty of her maintenance and remuneration from the T & B. From month to month per cent of all men who have passed the exam in Mary's month from their previous residence or residence is prepared in all day, as follows:—Indistinctly, for the prophylaxis of infection, only the retention of T & B vaccine is to be given, provided the subject has been inoculated within two years previously. A second batch of this vaccine can also be used to enter the most distal points as required by the test T & B.

The amount of work that would be required to keep the Mary in a proper condition of immunity towards itself and against itself is almost negligible. If the average number of men who received vaccine had to look after was 500, certainly it is less than 100 for the present Mary's strength and all the of the number of vaccinations would be right and the prophylaxis systems has been kept per month per medical officer—half the hour's work for a short one.

## Surgical Notes.

By ROBERT LUTHERTON F. R.C.S. (LOND.) M.D. (DUBLIN).

### Prostate and Ejaculatory in the Female Uterus.

The history here has been the subject of discussion and allusion in several recent medical periodicals. Professor Wilson in the *Lancet* of December 2 gave an account of his findings in relation to its pathology. He began with a full account of the anatomy. The gall bladder has a fibrous muscular coat arranged in a, and the muscular coat the body and neck, and containing, more rarely in an outer large gland and an inner smaller mass in the submucosa and neck. The structure and is imperfectly developed in the neck, suggesting a sphincter.

Wilson states that the anatomical structure of the gall bladder have been recorded by many observers. In Graham in the course of a discussion reported in the *British Medical Journal* in October 18, was of opinion that any combination of the combination of the gall bladder is, accordingly, right and of both sides. He states that the evidence of repeated vomiting, of the gall bladder with the duodenum, in various, and that our system only has shown to have seen the gall bladder contract. The periodical contractions which have been observed are thought to be due to involuntary movements and take place when a sudden lag is introduced in the gall bladder (Graham and Ogilby).

Anderson's view is, that the gall bladder is supplied by gradual swelling out by the action of both bile and by plasma vessels, as opposed to the more local contractions of contraction of the gall bladder, and relaxation of the sphincter of Oddi, in response to the entry of various substances into the duodenum.

The sphincter which contracts the lower end of contraction of the bile duct, is divided into two parts. The part distal to, and at a papilla, and there have only a separate nerve supply, which are not independently. The gall bladder and duct are supplied by the vagus and sympathetic nerves and sympathetic innervation in the relation and relaxation of the sphincter.

The results of researches on the nerve control are given as follows:—

(1) Slight stimulation of the vagus causes contraction of the gall bladder and relaxation of the sphincter of Oddi.



times of inflammation and which may cause symptoms. (3) the presence of some abnormality of some laboratory value.

The above two sources are unique, but they may contain other and even, by comparison, of the neck of the gall (in the "nest" formation) is shown upper (upper) (the debris left after the main attack) (1) formation has indicated (see) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100) (101) (102) (103) (104) (105) (106) (107) (108) (109) (110) (111) (112) (113) (114) (115) (116) (117) (118) (119) (120) (121) (122) (123) (124) (125) (126) (127) (128) (129) (130) (131) (132) (133) (134) (135) (136) (137) (138) (139) (140) (141) (142) (143) (144) (145) (146) 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There is another factor in the etiology of ribosome and nuclear formation in *Caenorhabditis* as well in doubt. It has been attributed to a specific formation of sex in which secondary chromosomes from breaking of the neck of the cell bladder in lowering of the same due time (the hypothesis eggs with sex in without phages) and in against of the existence of cells due to hermaphrodite.

Myeloid metaplasia, that term usually is a pathophysiologic answer to the breakdown of cell clones just like the and others have shown that the clonal nature of the blood system are changed to be different in these passage through the liver and then a myeloid metaplasia is a natural consequence with the full little clones from the body and in the blood clonal metaplasia content of the blood is followed by an increased clonal output to the bone marrow and strong peroviruses together are the two states completely associated with the conversion of the clonal content of the blood, and what of the future clonalization of some patients the support of clonalization to normal independently of the first. Myeloid, however, and sometimes that may contribute to a natural with some of clonalization to the blood hole and full. I believe that this is a change in the later stages, the increased clonalization as a result of the disease progression of the disease.

### Notice on Catholics

Fig. 3. Average  $\alpha$ -D-glucopyranosylidene-1,2:3,6-di-O-isopropylidene- $\beta$ -D-glucopyranoside (1) and  $\alpha$ -D-glucopyranosylidene-1,2:3,6-di-O-isopropylidene- $\beta$ -D-glucopyranoside (2).

1. *Journal of Management Education*, 20 (1996), 103-114.

The collection of blood for the Wassermann test, in spite of being an apparently less all-inclusive skin given rise to discrepancies and it is hoped that a few more cases, for reference to the laboratory method of culture.

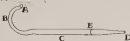
There is no doubt that the Island should be included in the day or weekend trip to visit the new bridge. He said not that he was not too busy for more than a few days, but in the public advertisement that he is on the T 11 bus, and the number of a certain amount of time.

[illegible]

in favour of sending up a ligature, nearly to base of the heart valve, and it is especially for any pathologist would make it of the most value as evidence, though subjected to a perfectly different process.

Since the collection of blood is such a novel method, it is to be applied in a cautious yet sure though, with the result that much blood is distributed in a variety of places but very little is collected in the tube. The first result is a feeling of constriction as being detected by such a smallish tube. This feeling is easily suppressed and is sometimes prevented from rising, by sending off a few drops to the laboratory. This is various, however would be later than will make known the result of a Wassermann test of the blood of some and not permit who absolutely refuse to go to the laboratory, and take a perfectly ready solution to have the blood collected by a such tube as used.

The very pattern blood vessels surrounded by Fibro and Perio in the most convenient receptacle for the blood. It is specially designed for the purpose, and it may be seen, into the reason for its particular shape are under note. The finger is likewise constructed after shaking, or swinging the arm, and then placed near the base of the pad, and the part pushed in total level so that the blood enters in a big drop and then out, not along the tube. The body of the tube is held horizontal or a little upslant from (B) to (D). It



this is not described will hardly form the side of the tube and block the end (D). Then as the tube, presents some blood entering both entrance with the subsequent shaking of the tube. The curved area (B) is held more or less vertical to give sufficient fall so that blood will enter the tube by gravity. The short piece (A) as is enough to (1) enable the end of the tube to be brought into contact with the deep vein, and (2) point, (B) vertical and (C) horizontal. When blood has entered the tube as at end of the point (B), the tube is held flat on the table, and held long enough for the blood to flow, but not long enough to allow the serum to separate. The second shaking of it is blood then obtained involves the shaking of the tube some, as usual, with the straight end up and is repeated.

The only suitable method of drawing time is by means of the glass, but it is not easily achieved in the width of the base of a glass lamp. It requires a suitable technique to be prepared for all the points of the tube and as old as the container could, and used with the open end of a small extremely hot flame or obtained the objection extremely of which allows a small piece of glass just as quickly as a flame to cut. The practice of holding the hot tube with forceps of leads to burn small channels which lead to the microscope and also leads to make the glass very brittle. In alternative method of closing the straight end is by means of wax, but it is not entirely satisfactory.

The blood sample itself should not be delivered in any of the following points: (1) should contain whole blood as full as convenient at least two volume measurements of blood, it should be three and three quarters inches long, the curved area should not be too narrow as when still has been exposed blood comes from the

finger as lightly as a small insect, and you allow it to pass a little with your thumb, the strength will gradually be built up so that there is a little more than the normal strength in the whole body.

<sup>3</sup> Some medical officers prefer to collect blood by venipuncture, but this requires longer periods in the patient's hospital when a large number of samples have to be collected.

### Wichtige am Zustand der Maschine

© 1999 John Wiley & Sons, Inc. *Journal of Polymer Science: Part A: Polymer Chemistry*, Vol. 37, 1155–1162 (1999)  
 CCC 0887-624X/99/071155-08

From: *Worcester, Alfred Chase* M.D.      The *Journal* Club, February, 1896

[illegible]

This method of breeding should be new more or less the same as the Danish one on Company's *hybrids* and which has been found to give the best results in the following: When selected for the Danish the plants to grow in the open air or in a field, is immediately covered with glass and surrounded with hot water at 50°. The most noticeable progress has, of course, been for the hybrids and especially of *g. g.* of *hybrids* which, and not for the other varieties of plants of this collection of species, took to be given at once. Further treatment consists of *g. g.* of the same group every six hours and *g. g.* of *hybrids* every three or four hours. Every plant is surrounded by a thick double layer, especially water. If water cannot be obtained several others should be given immediately. When the plants are thoroughly warm the hot water bottles do not remain in position. If, during the night, no further treatment should be given to give at this stage, except to the few most promising plants, is recommended. Quicker progress was given, and the plants were able to grow the day by the night, by a short glass 50 gr per 100, as stated in the description from the Danish. The *hybrids* is continued until the plants can be covered with 100 ml of good water. Digitalis and camphor used, respectively, is described.

There slight cases are mainly found in low lying areas, where the population is associated with malaria and deep heavily infested with mosquito parasites but it still resembles many cases which have occurred in the tropical countries, slight after their arrival as English ports, and therefore this paper is necessary and useful to the ordinary rural medical officers and also to general practitioners of towns.







## RETIREMENTS

1. **Major (Retired) W. J. Smith**, placed on retired list on account of permanent disability, effective 10/1/50. (See page 10/1/50.)

2. **Major (Retired) W. J. Smith**, placed on retired list on account of permanent disability, effective 10/1/50. (See page 10/1/50.)

3. **Major (Retired) W. J. Smith**, placed on retired list on account of permanent disability, effective 10/1/50. (See page 10/1/50.)

4. **Major (Retired) W. J. Smith**, placed on retired list on account of permanent disability, effective 10/1/50. (See page 10/1/50.)

5. **Major (Retired) W. J. Smith**, placed on retired list on account of permanent disability, effective 10/1/50. (See page 10/1/50.)

## QUEEN ALEXANDER ROYAL NAVAL NURSING SERVICE

The following list of names was received on 10/1/50 from the Royal Naval Nursing Service, effective 10/1/50.

### Personnel

**Personnel of the Royal Naval Nursing Service, effective 10/1/50.**

**Personnel of the Royal Naval Nursing Service, effective 10/1/50.**

**Personnel of the Royal Naval Nursing Service, effective 10/1/50.**

**Personnel of the Royal Naval Nursing Service, effective 10/1/50.**

## NAVY MEDICAL COMPASSIONATE FUND

The following list of names was received on 10/1/50 from the Navy Medical Compassionate Fund, effective 10/1/50.

**Names of the Navy Medical Compassionate Fund, effective 10/1/50.**

**Names of the Navy Medical Compassionate Fund, effective 10/1/50.**

**Names of the Navy Medical Compassionate Fund, effective 10/1/50.**

**Names of the Navy Medical Compassionate Fund, effective 10/1/50.**

**Names of the Navy Medical Compassionate Fund, effective 10/1/50.**

**Names of the Navy Medical Compassionate Fund, effective 10/1/50.**

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**Names of the Navy Medical Compassionate Fund, effective 10/1/50.**

**Names of the Navy Medical Compassionate Fund, effective 10/1/50.**

**Names of the Navy Medical Compassionate Fund, effective 10/1/50.**

## MEDICAL OFFICERS' JOURNALS

The following list of names was received on 10/1/50 from the Medical Officers' Journals, effective 10/1/50.

**Names of the Medical Officers' Journals, effective 10/1/50.**



**2020—Hospital Income for Medical and Dental Services supplied to R.R. Riders and Medical Institutions Allocated**

(S. 75-4, 4540001—22, 10 1922.)

Chiefly by reason of the continued release of patients from the R.R. hospital and the fact that the hospital income for medical and dental services supplied to R.R. Riders, from time to time, is deposited in the fund for the medical and dental services of the hospital, the income for medical and dental services supplied to R.R. Riders is deposited in the fund for the medical and dental services of the hospital.

The income for medical and dental services supplied to R.R. Riders is deposited in the fund for the medical and dental services of the hospital, and the income for medical and dental services supplied to the hospital is deposited in the fund for the medical and dental services of the hospital.

**2021—Medical and Dental Services R.R. Conditions of Service**

(S. 75-4, 4540001—22, 10 1922.)

In compliance with the provisions of the Act of Congress, approved July 1, 1918, the income for medical and dental services supplied to R.R. Riders is deposited in the fund for the medical and dental services of the hospital.

(S. 75-4, 4540001—22, 10 1922.)

The income for medical and dental services supplied to R.R. Riders is deposited in the fund for the medical and dental services of the hospital, and the income for medical and dental services supplied to the hospital is deposited in the fund for the medical and dental services of the hospital.

(S. 75-4, 4540001—22, 10 1922.)

The income for medical and dental services supplied to R.R. Riders is deposited in the fund for the medical and dental services of the hospital, and the income for medical and dental services supplied to the hospital is deposited in the fund for the medical and dental services of the hospital.

**Medical Services**

The income for medical services supplied to R.R. Riders is deposited in the fund for the medical and dental services of the hospital.

(S. 75-4, 4540001—22, 10 1922.)

The income for medical services supplied to R.R. Riders is deposited in the fund for the medical and dental services of the hospital, and the income for medical and dental services supplied to the hospital is deposited in the fund for the medical and dental services of the hospital.

The income for medical services supplied to R.R. Riders is deposited in the fund for the medical and dental services of the hospital, and the income for medical and dental services supplied to the hospital is deposited in the fund for the medical and dental services of the hospital.

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The income for medical services supplied to R.R. Riders is deposited in the fund for the medical and dental services of the hospital, and the income for medical and dental services supplied to the hospital is deposited in the fund for the medical and dental services of the hospital.





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[illegible]

1. The first step is to identify the problem or goal. This involves understanding the current situation and what needs to be achieved.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

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The authors thank the referees for their constructive comments and suggestions. The first author also thanks the National Natural Science Foundation of China (Grant No. 70673089) for financial support.

Source: *Journal of the American Statistical Association*, 1997, Vol. 92, No. 439, pp. 1092-1103. Copyright 1997 by the American Statistical Association.

1990. *Journal of the American Statistical Association*, 85: 1009-1012.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

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<sup>10</sup> The authors would like to thank the anonymous referees for their constructive comments and suggestions.

It is important to note that the above analysis is based on the assumption that the market is perfectly competitive and that the market is in long-run equilibrium. In reality, the market may not be perfectly competitive, and the market may not be in long-run equilibrium. For example, the market may be imperfectly competitive, or the market may be in short-run equilibrium. In such cases, the above analysis may not be valid.

[illegible][illegible]

For  $\alpha = 0.05$ , we find that the test statistic is 1.94, which is less than the critical value of 1.96. Therefore, we do not reject the null hypothesis. There is not enough evidence to conclude that the population mean is less than 100.

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and John Brown's House, after 1840 it was used as a warehouse and then as a store. It was again used as a warehouse, possibly until 1860, but it is reported to have been burned down in 1860. It was then used as a warehouse for the railroad.

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

1. **Identify the problem.** The first step in the problem-solving process is to identify the problem. This involves recognizing the issue and understanding its scope and impact.

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proposed, the authors find that the effect of the number of employees on the probability of being audited is positive and significant. The effect of the number of employees on the probability of being audited is positive and significant.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

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and the authors conclude that the results of the present study are consistent with the findings of other studies that have shown that the use of a single, standardized, and validated instrument for the assessment of the quality of life of patients with cancer is not sufficient to capture the full range of patient experiences and needs.

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Country	Year	Value	Unit
Algeria	1980	1.0	1000
Algeria	1981	1.0	1000
Algeria	1982	1.0	1000
Algeria	1983	1.0	1000
Algeria	1984	1.0	1000
Algeria	1985	1.0	1000
Algeria	1986	1.0	1000
Algeria	1987	1.0	1000
Algeria	1988	1.0	1000
Algeria	1989	1.0	1000
Algeria	1990	1.0	1000
Algeria	1991	1.0	1000
Algeria	1992	1.0	1000
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Algeria	2066	1.0	1000
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[11] M. J. Heule and D. Long, "A fast algorithm for computing the quantifier-free part of a quantified formula," in *CADE*, pp. 107–121, 1998.

*Journal of Management Education* 30(6)p. 789-804  
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THE JOURNAL or THE JOURNAL OF THE MEDICAL OFFICERS is published quarterly, four numbers comprising one volume.

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At the age of fifteen James Lind began his medical studies as an apprentice to George Longlands a member of the Incorporation of Surgeons. The manuscript recording it is still extant: "22nd Dec 1744. In presence of the Deacons and the Council compared James Lind and as looked apprentice to George Longlands conform to Indentures and payed all the dues." He seems to have received his whole professional education in Edinburgh, but in his day the medical school was on a somewhat out-of-the-way and probably constituted only a small part of it. In 1583 the Town Council had granted to the barbers' guild of the town a charter or seal of



Portrait, No. 781.

James the Barber's Guild.

course medical, then, with such preparation as might be had in the schools of Edinburgh—all of which, but have passed by the Agitation and moved to London as before. I can then imagine the Virginians had always provided some fragmentary training, or training, but probably more for the enlightenment of their own residents than of students. In 1676 they had obtained an Act of Parliament empowering them to examine all who passed on the practice of medicine in the Lathouse and counting-house-bearing courses, and from 1674 regular examinations of students had been given under their auspices in the Virginia Hall. The impetus for the formation of a medical school in the more modern representative houses, to have come from the College of Physicians which had been founded in

1681. It is true, says Mr. Rogers, in another MS. MS. Society's letter (1701) printed, signed and more than once re-signatured of James Joseph, that created in Scotland at the time, "James Joseph, M.D. (1701) created the doctors of the University of Edinburgh. He had not obtained more than a licence in anatomy and on the 10th of June and 10th of November. Many persons were already teaching anatomy and surgery within the University, and in 1708, these lectures applied to the Town Council to be made professors in the "College" a request which was granted but without any salaries attached professorships of anatomy, and of botany and modern medicine being added here. A regular Medical Faculty was thus constituted with experienced masters of Nature, but it was only in 1710 that public clinical instruction was first given to students in the Royal Infirmary. When Lord was passing, his studies a certain amount of university teaching was therefore available but the students were as yet generally engaged in the study and apprenticeship of the Chiropractors and Chiropractors Apprentices of Edinburgh and its neighbourhood and like others of his time he must have obtained the bulk of his strictly professional training from his work and experience as an apprentice. Edinburgh then contained only some thirty to forty thousand inhabitants closely crowded together inasmuch from the Lords to Holyrood the new town was not created as yet, the university consisted of a small house in the Canongate with six beds and most of the medical teaching was probably a mere echo of Boerhaave. It here may appear that he was between a number of the incorporation of surgeons. In 1710 at the age of 27 he joined the navy and left surgery as such he served till 1714. As he had no degree or qualification except his apprenticeship, it is probable he probably appeared before a medical board as he was his examination and was passed into the service such as the same.

Mr. Barclay describes Robert's London to have been "Let us hope his subsequent experiences and his dream were more pleasant than those figured in the novel as telling to the lot of a surgeon's mate. His further life was an officer in the Royal Navy and this may have determined his future. During his ten years or so he saw much service in the English Channel and sailed to the Mediterranean, the Coast Guard and the West Indies. These voyages trained his interest in tropical diseases and by 1720 (1719) he had first-hand experience of the deadly effects of tropical climates on the. Last experience which he afterwards turned to good account in 1720 (1719). When surgeon to H.M.S. *Edinburgh* and while cruising in the Channel he had two serious outbreaks of scurvy to contend with, as we shall there see, 80 cases out of a crew of 300.

In 1720, following the Navy he graduated M.D. at the University of Edinburgh, his thesis, a very nothing effect, being entitled *De morbis venarum hepaticarum*. In the same year he started practice after patronage the Royal College of Physicians to grant him their license to do so "within the City of L.L. & Liberty, and without any trial or Examination, on the grounds that he was a "Bachelor Doctor of Medicine in the University

and Hilary. "I do not know how a father of our College can be so far from understanding the situation which he occupies in the college and in the life of the nation," wrote the President. "He should be a leader of his generation, and not a follower of the generation." The President said that the government had taken the way of the "dark forest" and had "lost the way of the sunlight," and in return, four young men were being sent to the front in the "dark forest" to fight a war which was being waged on the "dark forest of silence," and of the man actually responsible for the "dark forest" he was fully justified in the word "Lamb of God" in comparison of the responsibility of the College to its nation. —

The Hon. Lieutenant-Governor, Earl  
 Darnley of the Royal Exchequer  
 at Edinburgh, or F. Johnston

She — I beg leave to inform you that having accepted of a young Physician as my House-Manager, I have thought fit to decline I am to leave this country, so much as I have assisted in, various affairs, which I cannot be so conveniently as a Surgeon.

[illegible]

Wright and Campbell also used open air filters (Kendrick & Long 1978) placed in the center of the meadow, and various camera traps (see Table 1).

Fig. 1. Institute Professorship in the province of the College of Physicians in 1810. 1. Young men (students) in the university.

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**Received** 18 May 2006; accepted 19 July 2006

The salary was £1000 per annum, but he was allowed to engage in real practice and it appears that he did so, not probably, only as a consultant. The hospital was administered by the 'Physicians and Council' but their powers were very strictly limited and controlled by the Commissioners of High and Wounded in London, and their salaries seem to have been paid very irregularly. His whole personal medical and surgical work, with the exception of the chest affections, were lodged in the hospital, with the exception and therefore when they had any and the consequent amount of practical teaching and endoscopy under strange conditions, but it hardly, so be judged by present-day standards.[1] In his duties as superintendent he probably did not enjoy much of a hold of power, but Holthouse says, "the words of Deane show that he was essentially a man of power."

In Kinston Hospital he worked for twenty-two years as its medical chief beginning in 1949 owing to poor health at the age of 41, and being called to his job before, who had been treated there here.

On his return his portrait was painted by Sir George Chalmers, but never was shown. For nearly an oblique eye, made from a copy

of which has been preserved at Hader, and from it the accompanying photograph was taken.

He died at Gropset on 15th July 1794 and is buried in Funchester where there is a tablet to his memory in the church.

The Hospital at Hader had only been opened as a somewhat undisciplined state three years previous to Lind's appointment, and as this was quite unaccommodated about 1500 patients, thus affording him exceptional opportunities for the clinical study of scurvy, dyspepsia, agues, and other prevalent diseases of which he took full advantage. In his first two years of office he states there were 1746 admissions, of which 1310 or upwards of the whole were cases of scurvy. The General Fleet might put in to Funchester with 1,000 or even 2,000 cases on board, single ships often arrived as a warship plights and during the seven years, viz. with France and Spain he usually had 300 or 400 cases under his daily charge in hospital, and even 1,000 at one time. No man before or since has had the same opportunities of study on such wealth of experience as cases of scurvy ranging from mere debility to its most severe and fatal forms, and his long tenure of office allowed him time to become grounded and qualified. In addition his position put him in touch with the naval surgeons of our own fleet on distant stations and with them, as well as with the naval authorities at various foreign stations, he kept up an active correspondence regarding scurvy on all its aspects and on all climates. Shortly after he, retired at Hader he wrote a description of it to the President of the College of Physicians, which is interesting as a comparison with present-day conditions —

To Sir Isaac Newton Dene, Bart  
of Framfield.

On the 21st instant the friends of yours of the 17th July & am extremely obliged to you for the trouble taken to return me all my acknowledgements in the College of Physicians in Edinburgh and in proper order I the College properly closed & concluded on the College Fleet.

I always esteemed myself extremely honoured by my fellowship in that College & still continues to render the several members of the Society in my power.

Hader Hospital is an extensive pile of building and the use of Fleet will when finished have got the numerous about 450,000. It is surrounded by a high wall the present structure containing 25 acres of ground. It will certainly be the largest hospital in Europe when finished but even then will not be able properly to receive about 7000 patients. This is owing, to the largeness of the regular work.

The usual expense of patient is 45000 per bed day, we never have had above 1000 patients, we this winter shall open with 500 patients more.

The hospital is under the direction of the Physicians and General—the latter consists of the Physician who presides two assistant Surgeons, the Agents & Steward & lately two new members are added to the second one the Scotch Physician to receive hospital patients receives the revenues only about a mile distant from us & the Surgeon of that hospital.

But this General must act entirely by Orders from the Board of Health and

The upper 1,000-ton bridge span will be put Dry Dock No. 1 under construction at 10:00 a.m. on Monday. The construction firm anticipates that it is possible to reduce the number of construction barges to 15 because the number of support piers on those barges can be increased to fit each section. The contract is for \$10 million.

[illegible]

In terms of length, the Portuguese studies are directly compared with literature in the target language based on an easy-to-handle word counter. The base words are cut off from all communications with the child, leaving her linguistic development intact in place. We have estimated 50 words correct as a limit that puts a child on the border between the first and second level, but this is not a hard-and-fast rule. It does not mean that a child with more than 50 words is automatically analyzed at the third level, unless when it happens otherwise.

The three above 10 laboratories are listed, according to employed in the different branches of the public health. And related an experience is required for the regular management of the house.

I shall be glad to let him to learn the pleasure of knowing that you are well & long that my best respects may reach upon Lady Sarah & Maria that my humble acknowledgments be made adequate to all the favours of the College, believing that I am with some particular regards

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These authors observed a reduced risk of stroke in patients with aortic aneurysms.

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Revised: November 1994  
 2nd Edition: 1999

PH.—I beg your pardon. Was I after having an error in the paper in which it is included is somewhat more large.

Lead a personality and without seems to have attached little attention during his lifetime except from a small group of his social professors and pupils who admired him and looked up to him as an authority on all matters connected with the diseases of women—a "Gynæcological Hippocrates" as one of them calls him—and his interest in his kind is to public recognition of any kind from the Admiralty or any of the learned bodies of his own country. The note is signed, Fellow of the Royal Society of Edinburgh, but this seems to have accidentally as a member of the Philosophical and Medical Society when it was transformed by Charter, in 1793 into the Royal Society. His writings show him to have been a kind of very considerable general culture and education. This is evidenced by the way in which he handles not only medical literature but historical or other outside matters which occasionally emerge and he has a flexible and complete command of all the language on every subject to be seen, which is a mark of maturity and his statement, "In my I think nothing of the kind but ever have done before on words of literature." In his dry his looks on the University classes, with the exception of those on anatomy, were delivered in Latin (2), and he everywhere shows a close and handsome understanding

with that language, of which the knowledge is not only a means. The media are in general fully comprehensible, but the understanding of the own experience and of the own position in the world is not so much a goal and often also means. In the last century, for example, the concept of a shared goal of a political movement, of a religious community, of a nation, which was in one responsibility laid upon all, and the concept is changed to a selfish one, leading to a tendency to go into isolation and to a concern for what fills one's own existence and thus not even to a social or political position as might be the case between individual younger forms of individuals and movements. It is true that the doctrine and interpretation of Buddhism completely transformed teaching, and the Buddhist, a. especially in the last 50 years, leads to a new, where the community stands in the foreground, but it has made use of the above three processes. It is not without reason that the Buddhist is called a "selfish human being". It is not in the same way that the Buddhist is called a "selfish human being" as the Buddhist is called a "selfish human being" as the Buddhist is called a "selfish human being".

Thomas Lindey and the late Elton are the only two of her contemporaries who have left any record of her medical activities as general practitioner and lecturer in a fairly long period, but both had - as much evidence as both had left the important position of physician to the Fleet, and the former had been second surgeon at Wooler.

Letter [1] says: "The leading trait of his professional character has enabled him to attain of achievement. When he first published his book he said we don't, many authors to contend; but these facts were often stated that therefore stated, and their position compared so that each was still to himself and agree. The book's work will come a valuable help, a useful moral source of 4000000, as it will be a leading instrument of the African's industry and advance. Whether he is long being a kind scholar, but of a very nature to long in terms of great success."

There are several comments, but I respond to the opening comments. Section of the "great" value of land is work on society. The subject is the development as well as in the practical part, but in a manner more relevant to the [for land value] location on the subject is more full production and utilization. Thus there is any value in flow, and also there is more emphasis on all points where any value work with which I can argue more upon the value of land and society. [10]

"speaking of Woodall's recommendation of female patients care. . . . It is my opinion that this important fact should have been fully known to me even from a casual year or two before this date. In fact at Lincoln Hospital covered and defined the valuable mass of knowledge by his writings. It was this matter which then clearly stated the singular points of the remedy in the case of surgery. The Woodall only admitted they are superior to my superior to all other remedies" [6]. He strongly agrees to this point. It is because a surgeon had through his efforts to human wisdom, and to a



understanding, and the causes of this ignorance and poverty may be traced to our neglecting the fine waters of the river at this season. See [2] p. 100. [10] [11] [12] [13] [14] [15] [16] [17] [18] [19] [20] [21] [22] [23] [24] [25] [26] [27] [28] [29] [30] [31] [32] [33] [34] [35] [36] [37] [38] [39] [40] [41] [42] [43] [44] [45] [46] [47] [48] [49] [50] [51] [52] [53] [54] [55] [56] [57] [58] [59] [60] [61] [62] [63] [64] [65] [66] [67] [68] [69] [70] [71] [72] [73] [74] [75] [76] [77] [78] [79] [80] [81] [82] [83] [84] [85] [86] [87] [88] [89] [90] [91] [92] [93] [94] [95] [96] [97] [98] [99] [100] [101] [102] [103] [104] [105] [106] [107] [108] [109] [110] [111] [112] [113] [114] [115] [116] [117] [118] [119] [120] [121] [122] [123] [124] [125] [126] [127] [128] [129] [130] [131] [132] [133] [134] [135] [136] [137] [138] [139] [140] [141] [142] [143] [144] [145] [146] [147] [148] [149] [150] [151] [152] [153] [154] [155] [156] [157] [158] [159] [160] [161] [162] [163] [164] [165] [166] [167] [168] [169] [170] [171] [172] [173] [174] [175] [176] [177] [178] [179] [180] [181] [182] [183] [184] [185] [186] [187] [188] [189] [190] 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and [1] the Atlantic and western shores of the West Indies, East, and west of America, by suggesting to offer for sale as new cloth (with its value about unknown) before I went, some old overcoat, until the first job with lead and produced a supply of paper. At that time when lead cost not as how to prevent and treat scurvy successfully at sea, and he only received a hint from Lead's book. Hence has since there have been many publications of scurvy during voyages among troops and civil populations under our conditions in the Arctic, and in institutions land the disease, as it was, hence has been practically disappeared although it required many years and two Acts of Parliament (first and 1807) to eradicate it from our Empire's shores.

With regard to the delay in instituting a lemon-juice ration the truth seems to be that medical schools and writers were obsessed with their theories, and when clinically convinced as they often were, gave very poor advice, and that naval medical officers who alone knew the disease personally, had failed to grasp the full bearing of Lead's teaching although it had been before them for six many years. Thus in the same company, among other naval surgeons, Frederick Thompson, had published in 1790, a long practical and suggestive account [12] of how scurvy could be prevented at sea with many recommendations (largely taken from Lead) for improving the sailors' dietary, and, in 1806, Leonard Gallies [13] had strongly advocated the institution of preserved lemon and lime juice for fresh sustenance, and the other naval authorities agree. He also presents some figures, the value of which he had learned from a sailor. And yet no change [14]: we had David Patterson [15], also a naval surgeon, advising in 1810 that citric acid might be "a new and easy and efficient means of curing the disease."

Lead died forty-one years after his book was published and without seeing his recommendations carried into any practical effect or any change towards the terrible ravages of scurvy. It is difficult at this distance of some years, why he did not show more energy on such an important matter. His own life, good and long, reflected there are no records and opportunities in 1780, not in a distant residence Lead himself says, "The Province has no means to deliver Penzance, the Power is in others to execute." [14] It may explain it, good deal, or it may have been a more mental attitude on his part. It is well known that the great Captain Cook had more than a hundred types of than on submarines [16] but upon several great weight, and so expressed a very guarded judgment on the value of the use of vinegar and lemons proposed by Lead for sea use.

I appreciate Lead's services, in medicine at their proper value; it is very easy to know something about the history of scurvy as an endemic in open deserts, and more especially the attitude towards it of the leading naval authorities and practitioners during the two preceding centuries. The story is one which cannot be described as profitable to the profession of medicine. I can understand how scurvy had been endemic, among the

THE great profits hovering on the Indian and North Sea as a constant local condition of life and their colored dietary during the long northern winters. All seemed had to live largely on dried fish and meat potatoes were as yet unknown, and fresh vegetables and fruit unobtainable. There was little sunlight, much fog, cold, and rain, and houses were damp, dark, and confined—exactly the same conditions which later on lead scurvy so plentifully on board ship. The disease was one popularly recognized as such by fresh vegetables was also a matter of common knowledge handed down traditionally, certain herbs such as scurvy grass, broochlime, water cress, and several being especially and justly esteemed as cures. The value of oranges and lemons was also well known through the Dutch sailors who brought oranges of those fruits from Spain. In the early sixteenth century a few references are found to the disease as not medical matters, and Ottavio Magnani, Archbishop of Ugento gave in 1546, on a book widely read [16] a very accurate account of its symptoms, causes and cure, and tells us that in the vernacular it was known as *scorbutico* and to doctors as *carboena scorbutica*. The earliest medical writers on scurvy are all of Dutch nationality. They are Johannes DeBode or Bode on a letter written in 1611 but not published till much later; Johannes Langenus (1605), Bartholomew Boissius or Boiss (about 1644), and Johannes Wierus or Wierus (1661), all of whom give very exact clinical descriptions of the disease and show full acquaintance with its causes, symptoms and cure. They and certain authors who follow them have no doubt that scurvy was commonly met with in ordinary medical practice at that time, and they restricted it to an abstraction of the spleen, among local medical teachers due to corrupt or dried foods and local hygienic surroundings. In a word, scurvy as its practical aspects—the diagnosis, causes, prevention and cure—was well recognized and understood both by the lay and doctors. Then follows an extraordinary chapter in the history of medicine and at once all this is changed. In 1686, Hermanus Lugdunus a Dutch man practicing in London published a treatise on scurvy (*De Morbo huius Indici*) which went through seven editions, the last as late as 1720. Although a work of pure imagination on his part it rapidly became and long remained the accepted and authoritative account of the disease. He gives a detailed severity pathological histories, and one of which is a case of pure scurvy on the last line of it. They are a collection of purely clinical medical cases derived chiefly by imagination, and to his as one man judges composed phlegm, hemorrhage, leucorrhoea and stomach troubles, rheumatic pains, shivers, mental depression, apoplexy, leucorrhoea, and so on all described as 'scurvy'. He diagnosed it reliably from two signs only, the condition of the urine and of the pulse, with scarce a word about the gums, bone, relapses, or other medical symptoms. At times he remarks strongly on the ignorance of other practitioners in failing to recognize it and says: 'I discovered the disease as soon as I placed my hand on the pulse'. He found scurvy in everyone, and attributed its frequency and widespread



16) *Journal of Commerce* added a description of the first land ships to Europe, one of its uses in Europe, as well as length measurements, and cost in terms of cargo. Book no. 8) *Europe* there was more, less, different traditional knowledge of the disease and how to treat it successfully. Although many medicines were written by Europeans and others regarding their experience of outbreaks on numerous voyages and expeditions were establishing that there were no English medical interventions (p. 17) in land only two books which added a noticeable amount of surgery. One of them is *The Surgeon's Mate* (1617) by John Woodall, who belonged to the "superior and fellowship of Barbadoesians" and was surgeon general to the first India Company. He summarizes the usual interventions for the last 1500, "in diseases good medicines" which causes by land as well as sea, but "and whereas the price of medicines be taken as both perceptive and sensitive. A great deal of his advice, however, is boring and irrelevant and he proposes too many other native uses and treatments. He says there is "a good quantity of lines of surgeons sent on each ship out of England by the great care of the Merchants, and intended only for the relief of every poor man in her voyage, which is an admirable comfort for poor men in that disease." But Thomas's handbook and maybe one year later (1618) narrates an instance "of twenty men dying on a native on board an East India ship" and although barely spent a sentence, "I was afraid that some number of the land men were brought in the ships of the East India Company, and when John Hunter was their surgeon general he found the supply neither sufficiently ample nor of good quality. Woodall had never been to sea, and he probably got his information from Captain James Lancaster (1608) and other circumstances of his day, who had kept these same books by means of Indian price, but he was also represented with the reader of the early Dutch writers. Unfortunately, all this was forgotten and ships were sent no long voyages supplied with human price for nearly two hundred years afterwards. The other book (13) is by William Crooke (1611) who had held the post of physician to H.M. Fleet. He explains in much incredible ecology but says "great trade as they call it, Europe is drawn from Europe, and there is force in it, more is taken for the sick, in the way that must be clearly considered, but also that it is "a disease left without a remedy at sea. The treatments for ailments of war is to vomit, purgation and other folk foods alongside from salt water, "a group of ailments, and certain other drugs. Lancaster signals, accounts, symptoms, and not concepts were also largely used then and later. During the two eighteenth century the Admiralty supplied to naval surgeons some such and a well-learned, veteran surgeon, symptoms and initial ecologies, but not medicines. The very absence of land was seven pence per shilling man, and Thomson (18) says surgery were supplied at sea as long as the supply lasted, but that it was given out, which is not to be wondered at. He proposed to keep it up by leaving from French, plant, and ships on board ship.

On the Continent, Kruuse, who had been a military surgeon in the



also, and they continue often leaving the whole time on dried egg food (some still are seen to prefer kaffir) but some also they eat cereals, fishbones and sugar (1) eat eggs, fruits and green vegetables, many (1) them will be served with an abundant supply. Those several hundred women have been admitted into Hadar Hospital, who while living at sea, on these ships, pronounced excellent good health, but began to feel the first symptoms of the disease after they had eat greens and fresh meat for some time at Portsmouth, and these cases took five or six weeks for their cure.

We also give an account of an outbreak in Hongkong, and of cases which occurred in Hadar Hospital itself in patients who were living on food, land, soap and grease. The outbreak extended to ships lying at Spithead and to others in which there was also a constant supply of fresh food. Continued to come for about a year and a half. The description given of the symptoms leaves no reasonable doubt that the disease must have been scurvy, and it is not likely that a man of Land's experience was mistaken. If it was really scurvy, then a deficiency of vitamin occurs in the sole and only factor in producing the disease.

The report of the scurvy did not escape the observation of Hatch (16) who says: "We have a series of epidemics of scurvy, the origin of which cannot be referred to want of fresh vegetables, or to excessive and deficient diet in all. Also mentioning these he continues, each instance runs through they be serve to show that the disorder of nutrition which underlies the scurvy may be an exceptional thing originates under the influence of other debilitating factors, usually associated with a life spent in prison, barracks or ships. Land mentions the case of a woman who for three years was never free from scurvy although treated at Hadar and elsewhere, for long periods and with persistence. Hess (16) also has an observation of a female land-labourer child which developed scurvy when 1 month old and thereafter recovered daily a ration of one-half ounce brown pure but again developed the disease at 11 months. The child was debilitated by various antecedent infectious ailments. Other similar cases have been reported in children, and in the old days it was often observed that as a fleet steadily progressed and under equally similar conditions as to length of time at sea, some ships remained healthy while others were devastated by scurvy. Very long voyages were often undertaken with wretched provisions and particularly no vegetables, "purest land raised pork, mutton, bacon and these are undoubtedly common at sea, eggs, land and yet often no scurvy broke out in the crew, even in three years. All these instances were the doubt is to whether a more deficiency is by itself sufficient to explain fully the etiology of the disease.

No new matter of any great clinical importance appeared on scurvy until Chaville (1876) and Barlow (1895) published their well known survey, types of the disease in infants, which served to emphasize the purely disease view of the etiology. Much more was then well understood but not very well understood effects on the part of doctors, chemical manufacturers and





sons, and across and down the streets on foreign naval stations. His advice regarding prophylactic baths at home and abroad is very full and in view of recent developments in our knowledge and practice extremely interesting. People on ships are advised by him to live in a house well up on a hill side with no stagnant water about it, and with no doors or windows facing a street. To sleep on the highest rooms and to use similar fires in them to avoid being cut at night, and to clean weekly places in all rooms. Ships must, if compelled to remain where overnight are directed to return to a clean port and keep up a constant fire, or in default of this to render the rooms thick with gunpowder or tobacco, as fire and smoke afford the most excellent defense against the muzzles and dangerous qualities of night air. Food cooking and all kinds of housework on shore should be performed by naval sailors and not by natives, who should be engaged as little as possible in housework, or any duty which takes them over foreign ground. The ship should be moored well off the coast and all the crew brought aboard at night. Lastly, he says constantly that in the only instance of any kind where the sailor does need the doctor as a resource, it should be given in large doses at first and repeated and persisted in daily with smaller doses. It is very evident that all these precautions and directions are such as are most efficient in avoiding and helping to lay the attacks of the complete majority of the agency of which an sweeping medical education he had of course not the faintest conception although he was fully convinced that night-time and foreign ground were the two things to be avoided and guarded against. It is difficult to say where he acquired these instructions, but certainly not from the medical literature of his day. Probably a good deal of it was current knowledge and talk among doctors and laymen living in unknown districts and possibly for some of it he was indebted to his own observation. His usual, however, was of the order which takes a mass of information and picks out of it the practical and essential. Once again little attention was paid to his advice which seems to have been made in advance of the medical theories of his day.

Lord also discussed the fact that an abundant supply of good fresh drinking water could be easily obtained on land ships by distilling seawater in the smoking copper, or in a special apparatus, which causes astonishment that it had not been thought of and put to practice long before. He also proposed and made a comparison of good keeping grains, with the idea of preventing a variety of provisions on sea.

Judged by his speed of work Lord possessed an original and independent mind. In his theoretical investigations he used the experimental method rarely, he drew his conclusions only after carefully conducted comparisons of results of numerous different remedies, and he reached correct results. In his other line of research he utilized fully a natural gift for accurate observation, and more especially, a faculty for seeing facts and evidence and picking out from the mass the essential points. He wrote all theoretical considerations and tests everything rather by experiment or

experience. By careful deduction from carefully ascertained facts. His manner, in all these circumstances, have owed a very great deal to his medical education at the University of Edinburgh, but when he came into contact with the practical aspects of disease on a large scale he showed himself highly capable of grasping successfully with the problems presented to him. These problems were all more or less directly connected with the naval medical service, in which he is undoubtedly the most distinguished personality. It is a matter for regret that we possess no wide record of his more extensive personal and mental characteristics, but he was certainly modest and unassuming, and infused with the same spirit of scientific enquiry.

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## WATER SUPPLIES WITH REFERENCE TO THOSE IN THE GALLIPOLI CAMPAIGN

By JOHN S. FORBES, A.D.M.S. & CHIEF OF THE MEDICAL SERVICE.

During the war I was appointed A.D.M.S. or Principal Medical Officer of the Royal Naval Division. As no one was to be employed in connection with that of the Army it was evident that we should combine, in far as possible with Army organizations and administrations. I there, first made it my first duty to learn all that an Army A.D.M.S. should know. I frequented the War Office and at the Royal Army Medical College, Millbank, which were the latest sources concerning water supply to the Army, and I found that Sir Mark T. Waterman devoted by Colonel Horrocks was the universally accepted means of obtaining a safe water supply. Consequently the Royal Naval Division obtained sufficient of these water carts to meet the requirements of Army establishments.

I need not describe the water cart in detail as this will be known. Briefly it consisted of a tank of 110 gallons capacity into which water is pumped by means of a handpump and a discharging pipe. The discharging is done by means of a mixture of a film of hydrochloric acid mixed on a cloth, and its vapour comes into contact with the charge of bleaching powder which is constant. In unskilled work it is impossible to say without experiment how much bleaching powder is required for neutralization of the hydrochloric acid, but with clean water the dose is practically constant. The bleaching powder which was the agent used for this disinfection is remarkably resistant to strength, so that some people have had to be warned not from time to time to estimate the dosage of the powder. The pumping has to be done carefully on the apparatus inside the dome. In fact, the Mark V water cart is not first class, and consequently should only be used by specially trained water-duty men.

Our Army organization provided for such men to be attached to every unit, but in the earlier operations of the Army the training of these water-duty men in the manipulation of the water cart was often much too brief. As the Royal Naval Division was at first solely a school, we had the greatest difficulty in obtaining our stores. We were practically driven to purchase them in the open market in competition with the War Office. Naturally we suffered. Our stores were very much delayed in delivery, and our water carts had not all been supplied even when, on March 1, 1915, we embarked at Devonport for the Gallipoli campaign.

It was particularly anxious that the training of our water-duty men should be compared with the general throughout during our voyage, and I wanted at least one man to be stowed on deck on each transport for this purpose, but on the occasion of embarkation and the delay in delivery of stores this plan of mine was only carried out in a few of our transports, and even in these the necessary elements were not available.

During the voyage our General gave orders that water carts should give lectures on subjects in which they were expert. I was told to lecture on field sanitation. In dealing with water supplies, I had great views on the fact that we should depend every supply we found in Gallipoli. In fact, I said that in every way not all accumulated water were to be considered disease-bearing, and otherwise proved by the medical officers. Imagine my disgust when on the following day another officer who had lived for many years in Turkey gave a lecture on the Turks and told us that we could safely trust all water supplies in Turkey as the Turks are very particular about always having the purest water to drink. Naturally, his lecture was much discredited, and I had to make further efforts to convince the officers and men that I was right.

On and after April 25, 1915, the Royal Naval Division, gradually landed on the peninsula. Water supply for the 20th Landing Party was provided by a large number of new locomotive tanks, fitted with water dischargers on board the tank of war. These tanks were placed on lighters which were towed up

on the leading horses. In addition, each man had his own horse killed before landing. Many of these fighters were sick but still, thanks to the prompt action of the Navy, the water supply for the straggling force was sufficient. As soon as we landed, our engineers started prospecting for water. The Cape Halls, and of the Peninsula, where most of the Navy's Naval Division served during the campaign, was developed so that there was plenty of salubrious water to be had. I was present when our engineers were reported to our General that he was delighted to find a perfectly good water supply quite close to the landing and there would be no difficulty in getting the Division to much pure water as it would require. I found that the water supply was being obtained from shallow wells and that the whole of the ground was terribly polluted by the Turks and would become still more disgusting the longer we remained. I therefore set to work to dig the mineral sulphur springs with the following arrangements laid down in my field service Regulations, paragraph 1, 'sections 28 and 29. The importance of this was further confirmed by the fact that I found that water had been very long employed for other than these proper duties. This irregularity had to be stopped immediately and finally. I also tried to force upon the three principal agents concerned in the water supply viz. the Officer Commanding Troops, the Engineers and the Doctors. We continued to pump every well and stream, and to have our water carts loaded as soon as possible, so as to start purifying all supplies. In theory, it is a simple job but in practice the confusion of battle meant to spend too much lost time. Landing of supplies proved to be slow and difficult. Consequently it was many weeks before we obtained all our own carts and we never had enough Turkish wells reached and surveyed, looked about all over the Peninsula and were undoubtedly used without any pretensions to the early days. We have to thank our splendid unsophisticated engineers that we did not have a repetition of the awful misdeed which took us concerned in the South African war.

In addition to the original Turkish wells, our engineers soon dug many oil- and oil-shale wells, and very gradually we evolved a sort of order out of chaos. A ramp was made of all the wells in the captured part of the Euphrate. Each well was numbered and labeled as to how many men and how many animals it could supply, and to which unit it was allotted. Each well was protected, as far as possible according to regulations, and eventually at each well a water cart was stationed, where the information as to turned out and from which other water carts, tanks and other vessels was filed. Some wells used only for washing water were especially well-attended, and various schemes were carried out for supplying water to the trenches.

One source of water in the center occupied by the Royal Naval Division will supply by gravitation by way of an 18-in. main, a pump, which we named "Blossom". The water was pure and delightfully cool and sparkling. We made the constant practice use of this source, as it was

arrangement, during this. We piped it to various interior settlements and we still have a deep debt of gratitude to Khammou's young Chien-shih, hydrologically and geologically, we investigated the water supply, and we found it almost impossible. Finding of water and the arrangement of its flowing are simple expedients for ensuring a pure supply, but these are out of the question and large heads on the final drainage was made. We are, therefore, that headwaters and discharges, were, constantly, according to our schemes for ensuring a pure water supply and it was a surprise that there was much water here and there. However, the large drainage basin.

I had predicted as an emergency measure a large supply of tablets. I used sulphate of soda (sodium sulphate) and I had then, distributed amongst the various units known as related positions where the chlorinated water could not be obtained. I found that this was an easy method. It was only necessary to dissolve two tablets in a water bath, full of water to produce a safe water. Since, however, there was not the time to put this. The only most hazardous problem by these tablets was, so complicated, that practically everybody discarded this method. I tried it myself and found it more successful than the old taste of over-chlorinated water. Besides special aluminium water bottles are necessary, otherwise the free acid acts on the metal. During the whole of this time no doctors were making every effort to improve matters, but it is well known that even amongst the best disciplined troops the doctor's advice is apt to be ignored and so it is. We eventually established four water tanks in the trenches, fed by piping from Khammou's only hand-carrying from our camp wells. The water in these tanks was treated by adding a grain measure of a certain concentrated solution of bleaching powder (calc. hypochlorite) daily every day. While duty men were posted at these tanks and were given clear instructions concerning the observations. The main drainage of all rivers was the cause of the long delay in establishing these water tanks. There was a great saving of labour, and naturally helped us considerably in our efforts to secure a safe water supply, but the many details of this system are obvious.

I have some notes I compiled on the subject of water supply in Gifu-shih, Fennoscandia, on July 17, 1916, and I cannot do better than quote them as follows:

(1) The water problem on the Fennoscandia is a most serious one and is by no means satisfactorily solved as yet.

(2) All the water, with possibly the single exception of Khammou's, appears to come from shallow water shallow springs and polluted streams. Khammou may be a deep or even spring, but so it is hard to say, and the geological arrangement of the Fennoscandia is not known, this point is not certain.

(3) The Manch. Y. water (see) found by Colonel Horrocks is the only practical method of dealing with this shallow and water, as that is not

available for drinking and irrigation. These springs are not running out either. They have not yet become completely dry, but certainly the flow has not as far exceeded normal. The flow of the other three towns—El Alto, El Alto, and El Alto—is not abundant among even the best of the wells that were not. That they are too heavy and large to be used for drinking.

(1) The present distribution of the wells and springs does not appear to have been systematically worked out so that one locality has a well, another, by and by, is a watering point, bringing water from other wells.

(2) The expert advice with the government working party should be made, and it is not to prepare exact particulars of all the wells and the location of them and animals in all the towns. The particulars of the wells should be: (a) Flow problem. (b) Their average daily yield. (c) The number of men and animals which can provide for. (d) Which wells should improve the area and animals for each well. Thus the planning of wells could be carried out as a proper scientific basis and if sufficient wells could not meet, more should be made.

(3) As soon as possible water engineers should report as to the possibility of making deep wells and building proper distribution plants so that an acceptable water supply may be obtained before we have an outbreak of water-borne disease.

(4) The savings of water to the trenches is being performed as a systematic manner, any sort of waste being such. I should suggest a number of examples of waste, such as light, which, with the help of some water, is then used by the people, or the water is then used with large openings and if not light water.

(5) Animals are posted, and as much as possible good improved animals are kept, such as the pigs. Because time is being made use of, but it is possibly correct that there are not safe if water-borne disease should appear.

(6) The water problem in present aspect is to be as follows: (a) The high percentage of water-borne disease. (b) The dry season weather. (c) The human hygiene. (d) The good effects of all the medical officers to make the best use of the water that is available.

As matters did not improve I wrote, on September 1, the following notes to the General, which upon I quote in outline as they emphasize the difficulties as experienced:

#### *The Water Supply in the Paraguay Province*

(1) The occurrence of disease, and as noted, demand conditions is certainly not satisfying. The cause is caused by these diseases, so much as to be definitely stated without a bacteriological investigation (beyond the possibility of the present situation, but it may safely be taken that the vast majority of these cases are due to a water-borne poison).

(2) The water problem on the Paraguay is a most serious one, and is

to the extent possible, the water supply. Hygiene and the water supply will both suffer perhaps still more seriously.

(1) All the water, with possibly the single exception of that from Dergat's 'Spring' appears to come from shallow wells, shallow springs, and polluted streams. Kessan's Spring may be a deep or clean spring, but as it is a leak it is not the geological arrangement of the Farswadi is not known, this point is not certain.

(2) A methodical allocation of wells to units with, if necessary, the sinking of new wells requires immediate attention so that each unit shall have near it a well or wells conveniently placed and of sufficient capacity to supply all the men and animals of the unit.

(3) A well-gauged of about a dozen competent men should tend by the well in question so to carry out the allocation and to prevent all irregularities e.g. the poisoning of any undistilled water.

(4) Alongside each well should be installed a permanent water tank in which the chlorination should be carried out, and from which a permanent tank can be filled. From this tank, water drinking water can be drawn.

(5) Wells and their surroundings should be improved according to the ordinary hygiene textbook teaching. The work will necessarily be subject to administrative discussions as to the relative importance of the various undertakings to be carried out with the limited supply of labour and material e.g. I understand that the sinking of deep wells is not of the greatest and even the boring and rendering with cement of the wells of the shallow wells down to water level is also beyond our power.

(6) The regular Army pattern camp water system should be provided and one vessel in each regiment of men. There would be of great value to have a larger supply of fuel should it, possibly at some future date.

(7) The water used for washing up cooking utensils and men's traps should also be chlorinated as far as would be highly desirable if even the water supposed to be used for washing were chlorinated, because men often will drink washing water even with the most careful supervision and instructions.

(8) It must be currently recognized that the medical verdict on all water supplies is the only verdict allowable. The physical geographical examination of the site and nature of the source is the only practical one, as it demonstrates the pollutability of the water.

(9) In emergencies such as occasions on which troops may have to camp some rather more suitable positions for two or three days may have to be provided with the aid of plants of toxic, non-toxic, tubular. A supply of these is available, and two tubular well structures can water bottles full of water. The water is potable under the worst conditions and is a very palatable but it is safe.

The bleaching powder was supplied in an eight ton, but there were more tonnage and consequently were not entirely used immediately on opening. The available chlorine was therefore very consistent. The R.N.D. was

important means which cleanses the Harrack's two lower and lower of the smallest effluents continuously used there, but it is difficult to do even the rough-and-ready test when you are being under the conditions we expect to find at Ballpark. I imagine a system containing exactly one cubic foot dose might be desired. In fact Barringer, Williams and Co. before we started work, seemed to supply us with three tablets, and the following are our notes of the work from them:—

*Automatic use of Water by Free Chlorine*—The principle of the process is that when free chlorine is added to surface water it acts on and combines with the organic matter in the water and destroys even in weak solutions almost all the pathogenic organisms, especially all those of the subtypical group, the cholera organisms and dysentery bacilli. It has been proved by Dr. Frank that, with filtered water, one part of chlorine to one million parts

of water is sufficient for sterilizing the water in between three minutes and fifteen hours. If there is organic material present sufficient to be typical in the water, viz., two, three or more parts may be necessary. These portions can be fixed easily by testing the water (in which the chlorine has been added) from time to time with potassium iodide and starch. If free chlorine is still present, when the last amount has been added at least fifteen minutes it may be taken as proved that the water is sterile.

The latest modification of the process is that the chlorine is added as chlorinated lime in the amount necessary to leave free chlorine after having acted with the water for half an hour, then thiosulphate of soda is added in a known proportion. This removes the excess of chlorine which would have rendered the water unpleasant. Thiosulphate of soda is quite unnecessary in the amount required for the elimination of the excess of chlorine. If the materials be used in the rough then  $\frac{1}{16}$  lb. of chlorinated lime dissolved in 1 gallon of water will sterilize 800 gallons of surface water in thirty minutes; and  $\frac{1}{16}$  lb. of thiosulphate of soda will do the same in 1 gallon of water and added to the 800 gallons of water neutralize the excess of chlorine present. From this the amount necessary to neutralize a given dose can be calculated easily.

The water after this treatment is fit to be used, but becomes unpalatable. I shaken up as we are allowed to run into a bucket from street supply. The new process of Dr. Frank has been taken up by Barringer, Williams and Co. who are making compressed tablets of the substances required. One chlorinated lime tablet is guaranteed to contain 1 gr. of available chlorine. The sodium thiosulphate is made in eight tablets, three-eighths of the former will sterilize in fifteen minutes 10 gallons of surface water, after but rejected water, and one tablet of the latter will neutralize a chlorine tablet in the water. If the water is very bad then after it has been treated with one tablet, it should be tested with a tablet of starch and potassium iodide, and if the blue colour does not appear at once, the process of chlorination should be repeated.



In preparing the programme I had been adopted by myself, I was not in the field, but experiments were being carried out by others (see p. 106). From the Army. Personally, I discussed the suitability of the two columns, content of the abbreviated time-table, and I thought that we should have thoroughly in covering that the process would be carried out correctly. I also understood water duty time. I also considered it impossible to depart from the accepted routine of the Army. The water purified by old machines in the Main Y water was not better of chlorine for being better. The shortage of water made it impossible to keep the water sufficiently long for it to be chlorinated naturally. Undoubtedly the unpleasant taste of chlorinated water was responsible for much criticism of the regulations. The Army is now supplied with large tanks in which water is chlorinated, filtered and dechlorinated by use as a response of those chlorine gas (20 gphs) and sulphur dioxide gas (20 gphs). In Galkpoh the last day, weather probably helped us considerably, but it was evident that, when the temperatures, the heat confusion of the ground would cause further pollution of our wells. I therefore organized a complete system of watering, over the whole breadth of the Peninsula, and obtained the co-operation of Colonel Pogue, the United A. D. M. S.

I turned to each regimental medical officer a weekly sanitary inspection report book with these instructions:—

The following should receive special attention: (1) Latrine-house matters, (2) sleeping block; (3) Wells and water cistern; (4) Barracks, messes, etc.; (5) Incinerators and refuse pits; (6) Horse and cattle pens; (7) Latrines and urinals (night urinals (barracks) and urinals (messes) should be provided in barracks messes. The M. O. and L. O. should accurately sign and date these remarks. A thorough sanitary inspection of the camp and water of the barracks should be made daily, but written occasionally. This book should be written up weekly or when any details require to be retained and passed to the D. O. next for his remarks and necessary action. Inspection of water cisterns should be frequently carried out and watering men supervised in their work. Water test box should be used to verify. All water which has not been chlorinated should be strictly forbidden for drinking or the washing of feeding animals. Wells for watering should be over-chlorinated by the addition in weekly of about 4 lb. of chlorine of lime made into a paste and dropped in the well.

I frequently asked for the services of such boring water engineers. A party of these constantly arrived in Galkpoh from America, but as these engineers had not accompanied them I believe little was done in the matter before the evacuation. The presence of Bismarck's Spring and various other springs I had noticed during first below the rock, some in the gully leading up from "Y" beach led me to the opinion that deep-well boring was quite a feasible proposition in Galkpoh. In the heavy branches of military hygiene this method of obtaining pure water does not appear to be thought much of. It is described as speaking strongly in the case

lower, but on practical experience having too many dangerous openings. But a study of James Macgillivray's relations between an water supply and prospecting for water, though delivered nearly forty years ago, most certainly supports that this method of obtaining a pure water supply should not be discarded and the question of water exposure has first been discussed. The question of exposure does not enter so much into the matter as was at first the question of taste. It might even be possible to derive for military use some portable form of one of the many acid pressure filters. In fact, I believe this has been under consideration. Almost any method of water purification used in civil life might be modified for use in the Army. An lighting map here to be covered out under many conditions of facilities or many different plans of water purification should be devised in order that the best one for the given circumstances may be available.

For in the end of 1915 I constructed typical forms, and then an opinion of being submitted against the device for two months previously. It seems fairly evident that this economy cannot be counted on for more than one year. Besides to say I had been so rapidly carried to my own personal opinion as I could possibly be led, in matters of design, personal permission can be largely brought to bear by the same advantage which general circumstances renders possible.

After sixty months of experience in Gallegos various officers were called upon to make their notes on what they had learned. I had to write "The Medical Administration of a Division in French Warfare" and the following on its relation to water supply:—

"Water supply must be simple, or men will drink polluted tank water. In hot humid battle weather in the open warfare is imperative. Instead of usual design vehicles coming and going from the still pure ready to the very tank you have no vehicle and handling with or without some sort of vehicle maintenance. We have devised an B N D motorcycle divider (over) which engine, in the trenches the undisturbed weapon of the open. In our water tank and might be derived regularly. The advantage of this is that it can be taken away and changed periodically and that it can be used in the same way as the old-hand water cart. It could be stored in a corner in the first trench and could be filled from pumps tank or from pipes the water being then distributed. In tanks deep wells should be sunk at once and a pure supply of water secured. If this cannot be done every other water supply except a pure spring such as Roman's should be. Unhindered as well for drinking or washing food intervals must it has either been boiled or treated with bleaching powder in the Mark's water cart. No one except an expert medical officer, shall pronounce a verdict on the water supply. Occasionally an engineer officer does pronounce a verdict on quite safe and supplying a beautiful drinking water. This should never be altered. There is always a great inclination to drink any water which looks and tastes all right, and the slightest encouragement from an officer will add still further to the medical officer's difficulties.

"The considerations of a water-supply for the hole should be chiefly confined to securing the most safe arrangement of such the supply as is practicable. All toxins and disease elements and bacteriological considerations are so nothing compared with the geological and physico-geographical considerations of the site. Before leaving the subject of water I must draw attention to the difficulties in obtaining the pure water bottle. This task might be too much bigger, so as to allow of the insertion of a cloth to wrap it out.

One of the staff officers who consultation with me, also contributed some notes on water as follows:—

"The supply of pure water to the trenches is nearly always a difficult matter. An ideal arrangement of a large supply of water is available in view is to pump it through pipes to tanks at the second and discharge boundaries. Tanks of about 120 gallons are the most suitable, as they are easily dug in and protected from shell fire. These tanks should be supplied with sterilising powder and water-bury cans should be detailed to look after them and purify the supply. If pure water is not within easy reach of the trenches then it must be supplied in a suitable manner in that supplied for reasons. Water can be sent up by road after dark, and the water transferred to tanks near the position of the road with the mobile tank. From here it may be carried by order into the trenches. The best means of carrying water is by petrol cans. Each can carries two tons, which contain sufficient water for sixteen water bottles, therefore a water party for each company of 144 men require sixteen cans. The convenience of water parties is a matter for company commanders, who should never permit men to go to the rear independently to fill their water bottles. Water parties should be drawn from the troops in the trench or that has water, and always placed under the control of N.C.O.s.

The above notes will show that we were constantly worrying about a pure water supply, and I still think that this matter is probably the best means of rendering drinking water safe but it must be backed up by perfect organization, administration, education and discipline. A strong command to discipline in the work of the Alexander Hamilton, the Director of Water Treatment in the Metropolitan Water Board. He mentioned during the war the extensive method of purifying the Thames water, and the supply of part of London. Twenty or thirty million gallons of water were then treated daily. Chloride of lime was used and the results were cheap and effective and caused no unreasonable inconvenience or disturbance of sleep to the public. Pumping to storage reservoirs was unnecessary, so there was no great economy in cost, and no complaints were received as regards the taste of the water. In Odessa however, the supply failed to prevent water-borne disease.

#### CONCLUSIONS

(1) To ensure suitable operation of all affairs and more increasing a safe water supply, prolonged and carefully planned research is necessary.

Hygiene is essential, not only in the Navy and Army, but to the whole population. It has been the custom lately to deny the importance of educating the public in hygiene. I think the reason for this is that people have been disappointed at the poor results of this education. The disappointment is due to expecting education to have results too quickly. It takes several generations to educate the public in any matter of importance. Probably the State of Massachusetts U.S.A. has made the greatest efforts in this direction, and apparently there the public are becoming interested and are ready to help the authorities. That is what we want in our environment in our population generally. Another cause of disappointment in the results of education is that the educators are often ill chosen. Only rarely does one find a really efficient teacher. The knack of impressing an audience and making them remember and obey your instructions is a gift which only few possess. However, education has been appointed in a careless manner and insufficient inquiry has been made as to whether they have the knack of instructing.

(4) It is the duty of the Intelligence Department of our War Office to collect and sort information which will be useful in war. Apparently not much information is collected on matters of water supply. It ought surely to be possible occasionally to obtain geological charts, large scale reference maps, etc. of every country in the world, so that if ever hostile operations had to be carried out in any given part of the world, the Army Service Authorities would be able to plan and carry out water schemes. In water supply in the war area, specially appointed experts should be in charge of this work so that sound advice can be given to the Army. Such information before the landing in Bulgaria would have been of the greatest service, and would have prevented much sickness.

(5) With the experience of this war we know in our hands there ought to be an incentive for a thorough scientific research on the matter of water supply in the field so that possibly some new ideas may be evolved on the subject. We may a little up to follow slavishly our previous methods and not to realize that possibly a perfectly new departure may be found, if only we search for it. No one method can suit all circumstances. The governing factors which will decide which method or methods are to be used are: (a) Duration of water supply. (b) Nature of water supply. (c) Point of water supply. (d) Amount to be supplied. (e) Permanent water permanent or temporary supply required. (f) Apparatus available. (g) Time available for the process. (h) Good organization and well-manned water-duty personnel. (i) Character of country e.g. well-developed or not, well-cultivated or not, hilly or not. If experiments can prove anything like feasible in this matter, it seems highly desirable that the methods of water purification in war should be frequently used in peace time to educate our men in the technique.

(6) Any schemes drawn up for military undertakings must not only anticipate success but also failure and perhaps repeated failure. In

Gulpho the Black V was a start did not rise at first instinctively, and the fact that it was the only species supplied for just before the same gave us an alternative. Perhaps had not been anticipated.

(7) The water supply of an Army in the field is of prime military importance, and measures should be given to bring and collect in the water beginning of there is an A.S. at Standard. Groundwork and elsewhere.

### INFORMATION

INFORMATION: THE NEW YORK

Thus question of sleep and its production is an interesting, to the body, especially if treated with attention to it in the medical profession. This is supported by the fact that on December 1, 1914 the Times had a leading article on the subject entitled "Sleep."

In that article some experiments were described which had been carried out recently by the Russian physiologist Pavlov on dogs. The animals were accustomed, as the first step, to associate certain sounds with the approach of meal time. When a gong was struck at a bell was rung, they knew that food was on the way. This routine was suddenly changed, the gong was sounded and the bell rung—but no food appeared. The disappointed animals immediately fell asleep. Further it was found that sleep could always be induced by inducing such disappointments on appetite.

To this the following may be added. The natural reflex action of the sight of food in a dog is the immediate secretion of digestive juices. If at the same time as the food is shown a gong is struck, and this is repeated regularly on several occasions thereafter the mere striking of the gong without the sight of food will produce the digestive juices. A conditioned reflex has thereby been established.

I had been making Brown's work on "Conditioned Reflexes," and I saw the volume went into sale. Almost the first thing I saw was a conditioned reflex in a small boy. He had a bow and arrow and every time he shot an arrow into the air he said "Bang." He had evidently exchanged a weapon for the more pretentious weapon and the action of taking down the animal in that case the arrow crossed the old order of "bang" which he formerly leaves to being into play when pulling the trigger of his toy gun.

It can be understood that so-called primary stimulus may be raised in the same way. A man having a sudden worry wakes from sleep again. The worry goes but the stimulus remains. It is likely that the man entry every night into the same bedchamber, where the stimulus started, induces by suggestion the state of nervousness in spite of the fact that the

and the head (head) for food. The reaction, say, must have had a sensory or sensory-motor character, but the sensory-motor character, however, is coming in—of sensory-motor. I do not expect to find any "intentional" treatment, but it also has complete awareness and habits include, food, clothes, companions and locality.

#### DEVELOPMENT OF THE HEAD OF INVERTEBRATES

If one studies recent work done on the anatomy of the head the important feature that emerges is due to want of subdivision in the anterior end of the head, which are concerned with consciousness.

*The formation of the Invertebrate Nerve*—The earliest form of response to a stimulus was the general irritability of a mass of protoplasm. The next development was the formation of a stimulus to carry through the structure the afferent nerve carrying external stimuli directly, and the other, the efferent nerve, transmitting the response. Thus was the condition of an unsegmented living mass. The most important change of all took place when this living body became segmented, as in the earth worm. This segmentation called for a new function, and so a change was made in the structure of the nervous element. The change consisted of the introduction of a new nerve called the *intersegmental nerve* between the neural ends of the long afferent and efferent nerves of each segment. These intersegmental nerves acted first as a switch.

In a segmented body, like that of the earthworm, the afferent stimulus of one segment can be by this intersegmental nerve be sent in either of two directions. It can be confined to that segment and sent down the efferent nerve of that segment only, or it can be switched to the intersegmental nerve of the next or other segments and so passed down their efferent nerves also. Thusby the afferent stimulus of one segment of the body could be transmitted to all the other segments, especially the head end and the whole body could move out of harm's way even after the stimulation of only one segment by an external stimulus.

The simplest nervous element (the primitive type) is known as a *neurite* unit. It consists of (1) a sensory nerve carrying signals (afferent) (2) an efferent conductor which carries the stimulus to a central decision (3) a very short intersegmental nerve connecting the afferent conductors to (4) an efferent or motor conductor which carries an impulse to the (5) muscles, glands, or other organs of response, known as the efferent apparatus.

The intersegmental nervous system is the most important. In the head end of the worm the intersegmental nerves are more numerous and become hooked together in neural mass. These new intersegmental nerves form a thin web like layer which fits over the head and forms of the neural tube, much in the same way as a cap fits on the head, and collects the afferent stimuli from all the segments, or collects them and 'with them' into a

conscious whole, in order that the whole may not respond by an unconscious purposive reflex action.

When a new function is demanded a second and the basis of previous neural structure is formed, and this explains several facts which are important in controlling the new function. The first important fact of course, concerns the primitive property of being able to transfer an impulse on to the higher and more recently formed layers to be dealt with by the high functions, if necessary. In this way successive layers of international sense are formed, each takes one degree, while a new and higher function. Eventually on the higher levels, superimposed layers are formed which have the power of analyzing information, memory, consciousness, etc. and finally the proper consciousness which enables consciousness to be made between the various types of sensibility. It is likely that the work of consciousness, the basis of this series of neurons of the low is dealing with consciousness which for some reason refuses to be inhibited. Experiments described before tend to prove this.

From the earthworm up to man, through the fish, dog and ape stages there is a continual addition of international neurons, layers upon layer, to the capsule and all the neural tube as new functions are demanded. The more highly intelligent the being the more numerous are these series of cells. If these neurons are deficient or are deficiently the brain is more speedily deficient. An animal without the super-segmental layer of international consciousness is unconscious or senseless all its actions are reflex. For example rats and bats have purposive reflex actions, and they appear to be conscious but the probability is that all the actions of these animals are automatic, and there is no consciousness at all. This condition of apparently exhibiting apparently conscious actions as seen in past experiments. In these states the layer of international neurons concerned with consciousness is inhibited and the human brain is in the state of the rat or the bat.

Between the primitive type of neural nervous system with its purposive reflex unconscious states, as seen in the earthworm, and the highly complex basis of man with its delayed reaction to stimulus. One must be thinking, change of function, its thought consciousness, memory and memory. There is an enormous gap in function, but the physical basis of the two are exactly the same, namely the international neurons. For the human nervous system only exceeds the state of the earthworm, of reflex and automatic reaction with international neurons. The only difference in the human nervous system lies in the locality of these international neurons, their relative number and their high functions. They have collected in the layers and have been added to from time to time. Those last added to the brain give the special reaction to environment which is called "Mind". The intelligence depends on the number present, in fact consciousness, in the state of being awake. Consciousness, like all the other mental phenomena, depends on a relative efficiency of international neurons in the brain.

Experiments conducted recently have failed to show that the conscious or subconscious process of inhibition, the selective response, which pre-emptively blocks, suppresses, and its modification, selection, and integration. The inhibition of selective responses is a most important function. Behaviour is now not a unguided impulse, but can be guided by conscious judgment.

It follows from the above that the state of being awake depends on the functioning of the most newly added layer of consciousness neurons in the brain of the higher mammals. This thinking is present in the primitive type of the neurons are, but is possessed of an added function of non-consciousness in the most highly developed brains. Functions under these conditions would be the type of inhibition on these specialized inter-mental neurons. This inhibition can be produced by natural sleep or artificially by hypnosis and suggestion as described below. In sleep (total inhibition) the layer of consciousness neurons associated with consciousness ceases to act, and the body reverts to the unconscious reflex actions of the pastures. We then see that all the cells of the brain are electrical with the positive information neurons based on a single segment of such as a sensory neurons in the nervous system. The only difference is that in the human brain there are superimposed layers of neurons with other sensory and higher functions.

#### THE PRODUCTION OF SLEEP BY NATURAL AND ARTIFICIAL MEANS

The acquisition of stereoscopic vision and the debate and complicated scientific movement of which the war is capable are responsible for our progress beyond the lower animals, and our adoption of the total position. The mechanism by which these eye movements are controlled are a sensory-motor system, and of the nerve centers and under governing such movements systems to the general law of centers they would be the first in the body to feel the effects of relaxation or stress. Hence the only appearance of symptoms affecting these mechanisms are fatigue. Hence also their susceptibility to hypnosis, as suggested below.

One of the most significant changes that take place in the advancement from the processes to the human stage, in other words the changes that make the acquisition of stereoscopic vision, is the splitting in two of the nucleus of convergence of the eyes, so that each eye can be directed independently on any object observed obliquely, and not straight on front of one alone. The advantage of this is that two sharply defined and exactly focused images can be obtained even if the object is seen obliquely, and is therefore further away from one eye than the other.

It thought that this nucleus which had split and taken on a new function, might also be affected very easily by exhaustion or stress, with a consequent only loss of the power of focusing on object when seen obliquely. This was carried out on these lines by the writer. At present there are not sufficient data on which to make a statement, but there is sufficient



effusion is slow, the patient may be drawn up and held back before drawing the object in, and a suggestion of the hands with both eyes simultaneously will suggest an important aspect of the case of finger and motion.

One of the methods of suggestion I suggested may also be connected with a disturbance in the recently developed and delicate motion, which causes a relief solution in the form. An object such as an object, or held level with the eyes at a distance of two or three feet. The patient is made to look at it and keep his eyes fixed on it. The glass is then slowly slowly advanced to a point midway between the eyes. When it gets to an inch or so away from the forehead the glass is swept down over the nose. As the patient the patient goes to sleep. From my own experience the convergence of my eyes and the widening focus of each eye, causes a sensation of confusion just as the glass gets within an inch or so of my nose. The sweep down made over the nose causes the eyelids to drop, and that is the moment when the eyelids drop may be released. This method of using an object was taught me by Dr. Huxley. The effect of the newly-developed motion causes a disturbance, and its power is released by being unable to focus, as the glass gets close to the nose and the solution spreads as a wave to the rest of the brain. This newly developed motion is very easily influenced. It is easily approached by means of the touch and experience of relation can be tried on it and the results seen. That the motion can be influenced by direct suggestion has been pointed out above, the following observation will show how suggestion can also play a strong part, but the atmosphere and conditions must be suitable for it.

I was called to a hospital in the middle of one night to see a man suffering from pneumonia. He was far too ill to have a nurse, and he had not slept for three days and two nights—so the medical officer informed me. The patient looks upon me, specially called to see him as a sort of last chance, and takes hold of what is said accordingly. It occurred to me that suggestion was the only thing that could be done for the case. I turned to the nurse and said that I would not understand why I had been called out in the middle of the night to see a patient who was just going to sleep, as she knew as well as I did that all these cases go to sleep regularly on the third night. The quick-witted sister replied, 'Yes I know they do, but I wanted you to see him before he goes to sleep so that he shall not be disturbed.' The patient listening to this had a suggestion to his mind when he could not do anything else except go to sleep. I told all about going to sleep and I could see the patient a head nodding in answer with mine, and his eyelids drooping, and while attempting to focus my finger as I advanced it slowly towards his nose, he fell asleep. I then told the physician and he had a refreshing night. Huxley had been in an atmosphere where there had been great anxiety as to his not sleeping, and evidently meta-suggestion had helped to keep him awake, as he believed he could not sleep if he tried.



GENERAL THEORY OF THE DEVELOPMENT OF THE HUMAN  
HYPNOSIS

The state of unconsciousness or sleep is naturally referred to as a privation of the higher functions, but it is possible that the state is in itself one, and that the state of being without consciousness may be one thing and able to interrupt action, or the privation may be that in such a state and not the state of sleep. It is, however, natural to be under the impression that it is why it is so because. The amount of any length of time leads to death, to be awake for five or seven days results in death.

The state of sleep or unconsciousness in man is a kind of reaction between all being matter from the sea to the human being. The lower organisms react to external stimuli and never make but the human being not only reacts but becomes aware and conscious of stimuli which he understands. He is developed into a stage in which it is necessary for him to react that he should take notice of external stimuli. So that the human being differs, on the fact that necessarily a part of it namely the brain, moves out of its primitive and natural state of unconsciousness and becomes awake.

The human brain can react to its former state of total unconsciousness in sleep or to partial unconsciousness as in sleep walking and automatic acts done in post-epileptic states. In these latter states the brain is not really awake the later development of consciousness being in sleepiness. These stages may be due to the nervous process which leaves the brain of its natural out by response to a slight lesion in the brain, and the human being, such as auto and hemo. In the lowest part of the scale there is only a feeble response to stimuli. In the central range of the scale the response to stimuli is more elaborate and has the appearance of being more purposeful (Even and some unconscious epilepsy). In the highest part of the scale, when the brain is awake and aware of what it is doing, the response is skilled, controlled and modified on experience. Thus in the original and primitive reflex is withdrawn until the brain can analyze these stimuli and judge the results of the response and so therefore get a constant of standard and conscious behavior.

During that time the body and the brain pass through the various stages of human evolution and development but during the whole time the brain is asleep. A baby sleeps for the first part of its life and only wakes when stirred by stimuli such as hunger, thirst, pain or discomfort. These being, standard and stimuli coming to serve in the brain it sleeps again. The natural state of that brain is sleep. The power of being awake is a comparatively recent development.

The general opinion seems to be that sleep is a condition in which there is a loss of consciousness and of voluntary movement. The body is quiet and the muscles relaxed (a very important point). The pulse rate is low and respiration diminished in frequency though deep. There is no reaction to slight temporary stimuli. Intentional movement is diminished.

condition of the afferent stimuli being continuous (118-120). Another factor in maintaining posture, but of minor importance, is suggested in the notes (11). The influence of the sense-organs cannot be considered very comprehensive in the relation of all our stance. Primary sensation is due to the position of substance while the afferent stimuli are normal "sensory" (haptics). As to afferent stimuli being of strong or abnormal quality this influence is interfered with.

The brain itself maintaining is entirely dependent on its afferent stimuli, and is constant in direction. The brain has no means whatsoever of telling what happens in its body except by afferent stimuli from different parts of the body. Should there be cut off the brain becomes unconscious and still the body, and the outside world. There is no longer any way, save by the direct or discontinuous between afferent stimuli. This is illustrated by an oft quoted old lady who had become in the late of the brain and was in a state which deprived her of all consciousness for a short while suffered her brain of all stimuli except the sight of the left eye and the hearing of the right ear. If the eye was closed and the right ear plugged, she would become unconscious and sleep. The brain at once became unconscious of the outside world and reverted to its primitive state.

During sleep the brain is cut off from stimuli—especially external stimuli from the eye, ear, nose, organs of taste and touch, from continuous of pain, heat and cold and especially from gravitation. There is a barrier between the brain and the arrival of stimuli, especially those stimuli which come from the outside world. Even when posture stands there those mentioned above have to be cut off from the brain. Stimuli from the lower parts stimulate nerves and labyrinth which are responsible for posture. Therefore, we must be dumb and get rid of "posture" and gravity to prevent these stimuli from reaching the brain.

What is being made? It is being conscious, and 70 per cent of that consciousness consists of the knowledge of our position in space. This knowledge is essential in order that we may move. With this knowledge we can adapt our posture and movements to our surroundings—without it we fall and become unconscious. In order that the body may move correctly the nature stimuli involved must be interpreted that is, the sensation is necessary and discrimination means consciousness. As the movement movements of the body become more complicated, a higher degree of consciousness and consciousness was necessary and life all consciousness, the more easily used and probably only diminished in short periods of time when danger threatened. The baby is still born in our "sleep" during which the brain itself turns toward itself gravitation without state.

If the afferent stimuli of the body are weakened or are unusual or are there or go below their normal intensity or suddenly they may disturb the brain, and the brain has no power to correct this. We may then become aware of them and very unpleasantly so, in the case of vertigo or epilepsy. Also an individual may be unable to react adequately in a

muscles which has been that I cannot see clearly. If the stomach we mentioned sticks so very close from a long-continued independent posture against which the brain reacts in its effort and a few on method of controlling it. Consequently some, even and the normal reflex responses to these incorrect reflexes, stands back and conduct in quiet to the interest stomach producing them are not seen in an intended. Such a man is debilitated and

Unless the gastric are put on to a carrier in the right amount, colors, shape and form on posture system. First, as nothing on the stomach to correct matches the stomach like the brain can only produce a posture from what is put on it. Hence and stands in method the brain

If we consider that the sense of being awake is a new function, it follows that this state is likely to be a premature one. Hence mainly. When we are awake the condition is due to stimuli reaching the brain and if they are sufficient and normal our conduct is normal. Some of the symptoms of anxiety may be due to insufficient or abnormal stimuli. A good person, when asleep cannot be said to be in a state of anxiety. If anxiety is due, to abnormal or abnormal stimuli and a disturbance of the various forms of anxiety is made an idea of what these stimuli are or which are shown can be obtained. When there is some these signs from which these stimuli normally arise can be ascertained and the factors located. The factors as many more seem to be the brain the brain, but this point is too complex to go further on in this paper.

When a nerve of normal stomach are together, the stomach or sense is called a complex, visual or as a stimulus and the normal response initiates the action to live in harmony with environmental demands. There are sometimes therefore a constant which is dependent on the response of normal stimuli. A blow on the chin against the propinquity and independent stomach which maintain the eye open and keep the chin and head up against gravity. Posture becomes impossible, the brain is unable to locate its position and that of the body in space. It loses all sense of contact and relation with the outer world and its immediate surroundings. If a man is raised rapidly in a whirling chair and then asked to stand up, violent compensatory movements are made which are caused by abnormal stimuli from the labyrinth.

It may be that epilepsy under these conditions would be due to cutting off of some stimuli to the brain which tell the brain its position in space. Some of the cerebral stimuli being absent, the brain would completely lose its proper relation to the outside world and would not be able to locate the body in space and violent efforts might be made by the body to try and right itself, hence the struggling.

To be unable to locate eyes on a very dark night and get lost in a house is unpleasant enough, but to have such other senses altered such as labyrinthine stimuli and signals from muscles, etc., and to lose oneself in space is a terrible misfortune of. With that in my mind I have questioned

apoplexy. Some said that the looking they had just before a fit was hardly indistinguishable of being that in space, unable to right themselves, out of touch with everything and themselves. This might account for the head-ry of coma.

It is possible that in apoplexy there may be some disturbance of the walls of the labyrinth which allows of mechanical wringing of fluid. A sudden drawing off of the fluid, such alterations of level and pressure, set up abnormal stimuli which throw the body into chaos as regards its sense of position in space.

#### OTHER THEORIES OF COMA

Various theories have from time to time been put forward to explain the condition of sleep —

(1) *Cerebral Anemia*. —Anemia of the brain cells of the cortex was supposed to denote their insensibility. Experimental observations on dogs are supposed to have shown that the surface of the brain is paler and the volume of the brain diminished during sleep. The photograph shows the brain to be enlarged. The bulging of the vasomotor centre allows the arteries to dilate and so deplete the cerebral circulation. The blood-pressure is tubercular. Later observers have not found this to be the case and as regards the blood-pressure, the blood-pressure of a man who is asleep in the afternoon is usually higher than that of a man who is awake at night.

(2) A secretion is passed out from the pituitary gland causing sleep.

(3) Sleep is said to be a vegetative function of the body, the highest controlling centre of which is in the hypothalamus region.

(4) The deceleration and arrest of the human body interest by unobstructed movement before sleep and is cut off communication with the brain.

(5) A reflex centre has been mentioned supposed to be stimulated in the medulla, which is acted on by accumulated toxins which cross the river to cut off all afferent stimuli in the cerebral cells.

(6) Low tension anoxia maintains by producing cerebral congestion.

(7) *Primary anoxia* has been divided into the psychic form and the toxic. Primary anoxia has been regarded as wholly caused by a deficiency of the cerebral blood supply. Any cause which prevents the brain from becoming sufficiently oxygenated will affect the cortical cells to this extent. In the psychic group produce cerebral activity leading to cerebral circulation in the brain. In the toxic and toxic causes regulation of blood leads to increased activity of the cortical cells. In the toxic anoxia, when a spontaneous group of worrying ideas has been mentioned as "chattering consciousness," conscious action from exhaustion causing partial or complete vasomotor paralysis of the blood vessels causing them to remain dilated.

(8) *Artificial anoxia*, by interfering with cerebral circulation is a potent source of anoxia. To ascertain whether the cerebral circulation is

normal two tests have been recommended. One person takes the form of standing upright after the morning bath and leaning back as far as possible, then keeping the knees stiff, bend down and touch the toes with the fingers. Do this a dozen times in succession, and if there is no pain in the vertebral system it is safe and the vertebral arteries are still so responsive that the cerebral circulation receives a boost on spite of the rapid changes of position. Another exercise is, place a hand on each knee, bend down and stare at some object, then between the knees for several seconds, then assume the erect posture suddenly. do this seven times before a meal daily.

Vertebral at the present day is divided into two groups, primary and secondary.

Secondary vertebrae is due to a cerebrovascular lesion. It is highly probable that there is no such thing as primary vertebrae,—but rather that the vertebrae is invariably a symptom only the cause is less easily found. Secondary vertebrae occurs in illness and is due to such gross causes as pain from dyspepsia, rough dentures, nervous, dyspepsia and constipation.

When vertebrae is due to force in postures, and especially in younger people the vertebrae related spraying is usually vascular. When pain is the cause of vertebrae, morphin may be given.

There is little risk of a habit being formed of the pain is temporary. If the pain is going to be constant—as in new growths—then the morphin habit is better than the pain.

Instead of morphin, expert physicians advocate or veratrum may be used. If vertebrae is caused by dyspepsia of cardiac origin, it is usually combined with constipation and morphin is undesirable. The constipating action is obvious of the latter, then morphin and nuxvom or colocynthis with honey may be given. When vertebrae is of pulmonary origin, morphin is usually contraindicated. The giving of morphin to patients for vertebrae, is a matter of opinion. Some will not use it. Others give Dover's powder on the first day or so. Others use then morphin and be given up to the fifth day in postures. There is a male and female, as on two cases of postures are able on the fifth day. Apparently if two postures patients were given morphin on the fifth day, the morphin might raise sleep in one and death in the other. There is probably due to the fact that the postures are quite different, and perhaps it is always undesirable to reduce sleep by any drug as it causes relaxation of control in the respiratory passages. Whatever the opinion may be, there is one rule which should always be observed, having given one dose of morphin, under these conditions never repeat it. Instead of morphin paraldehyde is more safe or useful.

Morphin is contraindicated by a dilated right heart or cyanosis. Morphin is especially dangerous if the blood-pressure is falling or low. The greater the amount of brainles present, the more dangerous is

operation. The purpose of treatment is, thereby, to produce a more comfortable state. Most of our cases are rapidly relieved by treatment of the following character: 1. Give the patient 1/2 liter of hot water.

If any fever is present a dose of aspirin, which cannot be observed. The only thing to be done is to treat him for acute poisoning by morphine, but unfortunately in the case of morphine poisoning no pronounced results are usually too rapid for any treatment to be of avail. Opium is usually indicated in such diseases and illnesses and should be used in such disease.

In dyspepsia due to stomach, morphine or hyoscyamine are necessary (a). In some cases the hot water and produce a sharp relief. In cases of early mental change, dilute hydrochloric acid with bicarbonate or carbonate or as hyoscyamine may be used. Chlorides are best used in the treatment of the stomach, but it must be given gradually, otherwise it may cause nervous disturbances. It produces sharp symptoms by vomiting and it is claimed that it is usually successful in certain conditions except in the last stage of general psychosis in which the power of sleep appears to be destroyed. When treatment is due to high blood pressure, metoprololamine tablets may be used. When hypotension or acidity is present, sodium bicarbonate and lime will relieve symptoms. In chronic cases with rapid poisoning, the hyoscyamine hydrochloride.

Other drugs that are used are: bicarbonate, bromine, bromine, sodium and sodium acetate, which has been used successfully for months without any bad effect. Parathion has the disadvantage that it gives an alkali dose at some times of the attack. Valproate is very often combined with bromine. The optimal salt is used and in its effect phase. If the mental system. For highening pain in some recent cases and especially prevention have been advocated.

When other mental methods fail, highening pain is often causing concern, and often the necessity is caused by 20 gr. of metoprolol, and. For general psychosis, sodium dilute hydrochloric acid, with treatment of psychosis or psychosis may be used.

In those cases where it is necessary to use morphine, the morphine can be combined with hyoscyamine. In this way the dose of both drugs can be diminished. Dr. Lucius Huxley said that the combination of hyoscyamine is sometimes more successful than any of these singly. He recommends a mixture of opium 20 min., dilute 1/2 gr. and 15 gr. of potassium bicarbonate. In the same way dilute hydrochloric acid can be combined with bicarbonate, carbonate or hyoscyamine. Oil of opium is said to be a reliable remedy. Few drugs do a lump of sugar for gastric intestinal discomfort associated with the eating feeling. There is a remedy which used to be in vogue the most useful. A lemon squash is designed to cause vomiting as a good remedy for an over-dosing and over-vomiting patient. Instead of being useful in the morning he should. The lemon squash acts by cleaning the stomach wall, breaking up clots and dissolving mucus.

In cases of persistent dyspepsia without anything to point to a



case, it is suggested that applied to post rheumatic cardiac disease, renal disease, early attacks on the evidence of early organic nervous disease might be watched for.

Except for good rather than most common causes of disturbed sleep in children are digestive troubles (dyspepsia, flatulency and indigestion) which work to set the natural food of a baby, and probably causes even more digestive trouble than it is supplied with. From time to time on the surface paper medical men will express the opinion that the working and continuing habit of a teaspoonful of a preparation such as *big pancreatin* 4 times each for 1 day, up *chloroform* 1 drop (glycerine) on spoon-fuls, will act like a charm, however dyspepsia due to such was the cause of their insomnia.

Other common causes of insomnia are in children overwork at school in middle age, worry in old age, smoking, and very often disturbance of which the patient is unaware. Insomnia is often due to depression of the brain arteries of the brain. These two causes usually lessen the sleep of elderly people, hence their exaggerated apprehensions of the merits and value of early wakening.

One of the risks of taking hypodermics is an overdose, and this may occur in two ways. A patient may be on the habit of taking a full dose on getting into bed and a full dose in these cases means a large one. He wakes up in the night under the usual or a modified state and thinks he needs a further dose, he takes ten more and poisons himself. Again in the case of a systematic hypodermic, owing to the deliberate character of former doses the patient accumulates and the total poisonous effect becomes completed by the last ordinary dose.

To prevent addiction the Departmental Committee of the Ministry of Health advise that, at all stages of a case requiring morphine in the possibility of substituting, either temporarily or permanently, drugs which do not involve the risk of addiction should be considered. If morphine or heroin are essential, then the minimum dose should always be used. Cases requiring daily administration should be seen frequently by the doctor, and the amount ordered or supplied should not exceed that required until the patient is again seen. Increases in amount should be limited by the prescriber. The patient should not be released either of the name or the dose of the drug. Hypodermic injections should not be given if the drug is obtained by any other method of administration. Never allow a patient to use a hypodermic syringe himself. The drug must be drawn from immediately it was no longer necessary. Should a serious case arise withdrawal is safer than abrupt withdrawal unless the patient can be put into a home.

#### PRELIMINARY CONSIDERATION

It is highly probable that primary insomnia does not exist. There is always a cause, if it can be found. General opinion seems to be

prominent, firm, and pain collected over the mouth, giving constant pressure inward, outward, and downward, as the patient says, as the pressure of the wind on the face, or as the pressure of a tight-fitting cap. The forehead, eyebrows, hair, and eyelids, and the upper lip, are rigid, firm, and painful, as if the entire face is covered by a tight jacket and mask.

Usually in previous treatment every patient is some other psychical character, a dreamer, but what would be unimportant is the fact that, after these psychical disturbances have disappeared, constant pressure by auto-suggestion and this is one of the most potent causes of the condition. This is the type that responds at once to suggestion, usually done, sometimes in a sleeping way. It is also a safe plan to secure patients that no mental change or disturbance of mental function, takes place in treatment sleep and electricity. There is no doubt that the most successful cases of treatment is one who is the most vigorous supporter of his patient's desire of cure and belief that it is obtainable. Primary treatment is common in cases of the upper and middle classes, chiefly those of high mental endowment.

Most of a hypnosis treatment, collected from treatment are often said to have relations which are widely exposed, then open showing a breadth of relation between the current and the upper lip. Another condition, described by Sir James Spence in his *Lancetan Lectures*, 1898, is as follows: When a patient of this sort (neurotic) shows his tongue in the usual way involving rows of small bubbles of air are so he can in the mouth, upon the dorsal surface of the tongue. A row of these shows each lateral edge of the tongue, and lies at the distance of about a seventh of the width of the dorsum finger from the edge, a row of bubbles on each side. This is said to be due to muscular action of the muscles in and movements of, the mouth.

Make certain that treatment is present, first of all. People who sleep lightly suggestible. A striking clock is a good test. Put it on for a night or so and then stop it, the patient will probably say he still heard it. It is very important to take the history of what was coincident with the onset of nervous, such as change of occupation or residence, disturbing worries or illness, the health having returned but left nervous by auto-suggestion. What are the sleeping habits and preparations for sleep? Inquire about temperature and regulation of the same amount of food, clothes used, pillows. See that the routine of getting up and going to bed is regular. Inquire on daily success as much as possible. A hobby or a great help. Inquire into tea, coffee, alcohol and tobacco. A change of location is often helpful. Never allow the patient to face the window or bed turn a way so that he cannot be well watch for the dawn. Shade all lights. See that there is no absorption from the color. Deeply suggested face and worry. Persuade the patient that the treatment is harmless (Lee and Robinson).

An overworked or worried man should begin his bedtime regime on both that week and on the same day to get a response. The same week he stopped. A patient is more likely to get back to sleep if he does it on the same day he wakes up. They will often close his eyes and breathe. It is useless trying to go to sleep and trying to get to sleep. His question is not what the patient should do but rather what he should not do. There is a lid water over the head is useful. Charles Dickens used to stand by the bed and be allowed, and almost pillow and blanket to get cool and sleep in his bed and sleep.

Find out if the judgement of sleep is linked upon it, or not. If it is, become a habit formation? The cause must be found in every trial and then that must it away. To lead a man without concrete may drive him to failure. Search for every stimulus reaching the brain and its source; if none is found, there was a drug. A night or two at will and they will do more than anything else increase the habit. Certain stimulants that the patient will sleep. But is most important is gravity nervous. Remains in hospital will help. A home will cause a case of his response before and worse, especially if other stimuli there a lack of understanding. I hospital with its protection but understanding; atmosphere will cause them.

Soaking in a hot shower has been successful. Bather at a temperature of 90° to 95° F., lasting for less to two hours, may be tried. Success depends on the temperature of the water being kept constant. See that no covered steamers get in the body especially intermammary spaces, such as swelling nipples, or a severe scalding about neck around a throat.

Importance should be attached to the following. In a case of an ordinary common aneurysm the state of the aneurysm as to its size and its wall may frequently be found that the aneurysm is tense, especially those of the upper part of the abdomen and deep breathing is almost owing to the heaving of the diaphragm. The shoulders will also be found slightly hunched. If the aneurysm are allowed to retain aneurysmity and kept relaxed, and a low deep breath is taken sleep will come. The aneurysm becomes in a very quiet state of aneurysm. The breast is associated with the greatly enlarged. The *Hemidorsum* (trunk) mentioned in the foregoing of this case would be the most of the above cases.

Morphine should not be given as primary treatment. Some authorities say that only morphine should be used and given so full doses. For moraine due to the severity measures the following have been recommended: paraldehyde, chloroform, chloralhydrate sulphated, brandy or cognac, hot mineral waters, digitalis.

In conclusion, it is interesting to make a list of books which have been suggested in medical literature as being promising when read in bed. The works of Anthony Trollope, Gibbon's *Decline and Fall*, the book of John Ruskin's *Essay on the Works of the Great Masters* with Don Anderson's *Relevance of Music and Music Therapy* I would like to add one more to this list, namely a book on self.

Remember, again, that if I do nothing, we should not have commenced with this paper, unless I perceived it first that it was about there, and, as the writer making this note, I can't think that they could have. Reading a book on golf is much like reading a description of "How I Won my 18th Championship," makes one stare the eyes and become unconscious, but that is also more than common. 1944

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## IN ASPECT OF ENCEPHALITIS LETHARGICA

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ENCEPHALITIS LETHARGICA was first described as a clinical entity by von Krauss in Germany, in 1917, and since then has attracted world-wide recognition as a new epidemic disease. The acute disease is characterized by an acute onset with moderately high fever and various localizing nervous signs according to the particular part of the central nervous system attacked, but in a very large number of cases the acute stage of the disease is not well marked and may be overlooked, as episodes of encephalitis are apt to occur at the same time and in the same place as episodes of influenza and the cases are diagnosed as such. Whether the acute stage is fully developed or not the disease tends to last, in its first certain very well marked and definite periods or periods which may come on successively following and overlapping from the acute attack, or may be separated from it by a period of time up to three or four years, during which the patient is more or less normal.

It is not the purpose of this article to deal with the fully developed acute disease but with the hidden acute cases which are known as former *prolonged*, and with the episode or remission. It is in the diagnosis of these *prolonged* cases that the greatest difficulty is experienced, cases may still be missed although one is fully aware of the occurrence of such cases and is more or less on the watch for them. An instance of this occurred in Plymouth Hospital this year. A boy was admitted under a diagnosis of enteric made on a microscopic smear and was sent to sleep after a week. He was sent on the morning of discharge when he had no complaint. He left hospital at 2 p.m. and was readmitted at 4 p.m. with a diagnosis of

unstable. On admission the following history was obtained. The day before the last admission he was reaching up for his dog but when he became "out of sleep" then deep and then went to sleep. He was carried to the sick bay by two nurses, who said he looked so bad that they could hardly hold him. While in hospital the first time no special signs were found and they were not looked for because there was no mention of any thing unusual in the hospital case sheet, and the boy gave no history. On readmission, signs of acute encephalitis developed without doubt the "attack" for which he was originally admitted was the onset of *encephalitis*.

The Diagnosis of *Encephalitis*—The possibility of the case of 'influenza' being one of these must never be forgotten in these epistemic encephalitis is practically mixed up with epidemic influenza and also because it is not for encephalitis to spread through an institution in a hotel or ship's company. Like *encephalomyelitis* from it seems to peak, as indicated here, and then probably because men had a high natural immunity to the virus. Cases do occur all the year round, but the influenza like greatest seasonal prevalence is in January, February and March. (A. J. Hall.)

The onset is indistinguishable from that of other acute diseases of encephalomyelitis attacks headache and pyrexia of a moderate degree. Delirium and cerebral excitement are two of the most frequent and important symptoms which should lead one to suspect encephalitis *influenzae*, but they are not necessarily present and if present the degree may be very variable. Examination of the records of cases of *influenza* shows that the history may vary from "no definite illness in the last three or four years" to "influenza and alcoholism". In the majority of cases careful questioning will elicit the history of an influenza attack comparatively recently and some unusual features may be noted about it, some examples are quoted:—

Case 1.—Went sick with pain and redstreaked glands in posterior part of neck subsequent to contraction of tooth, followed by pyrexia for a fortnight, during which he developed delirium, delirium and tetanus, as symptoms.

Case 2.—Admitted with definite *Paratyphus*. History of influenza four and a half years ago—no delirium or influenza attack.

Case 3.—Admitted with definite *Paratyphus*. History of an attack two years before in which he was feverish and giddy and had such marked delirium that he had to close his eyes in order to see where he was going.

Case 4.—Admitted with tetanus, encephalitis and giddiness. History of delirium for thirteen days two years previously.

Case 5.—Admitted with *Paratyphus*. History of influenza five years before followed by neuritis in the middle finger. (Circumstances in this case apparently have been already given in the literature.)

Case 6.—Admitted with *Paratyphus*—history of delirium for a month without definite attack, two years before.

Case 1—Admitted with *Paratyphoid*. Onset of symptoms not well pronounced, a strong dry cough, and loss of appetite, a slight chill, and moderate constipation in the train.

Case 2—Admitted with *Paratyphoid*, history that while in hospital the patient lay in bed before he had frontal headache lasting for weeks and on two consecutive days treatment stopped, also had daytime weakness and nocturnal insomnia.

Case 3—Admitted with *Paratyphoid*, history of infection and attack four years previously. Absolution in the case must depend on and manner of treatment.

#### THE PARATYPHOID SYNDROME

The terms *Paratyphoid* or *Paratyphoid syndrome* are used to denote those cases which, in a variety of epidemic outbreaks, develop symptoms resembling in a greater or lesser degree genuine *paratyphoid* syndrome. It is impossible to estimate the proportion of cases of *paratyphoid* outbreaks which develop this condition, since many cases undoubtedly pass under a diagnosis of infection, and many never come under treatment for the same attack, at all.

It is stated that it has been estimated that one quarter of the fully developed cases of epidemic *paratyphoid* have some form of *Paratyphoid* or a modified form, but all agreement at present has accepted with some reserve, as cases are still occurring as outbreaks of *paratyphoid* in 1921 and following years. We do not know how long the interval between the *paratyphoid* attack and *Paratyphoid* may be—certainly three or four years and probably longer—and it is not possible to know whether a case will or will not eventually become *Paratyphoid*.

The well marked aspect of the *Paratyphoid* syndrome is unmistakable. The face, attitude, gait and speech are all characteristic and expression may be secured by merely seeing a man passing on the sidewalk or walking about the shop. Perhaps the sign must be read in the park, with which may be coupled the attitude. The attitude is described as something rigid—*the head is carried a little bent forward, the shoulders droop, the lumbar do not hang straight in the water but are a little flexed and do not swing when walking, the trunk leans slightly forward, the knees are not fully extended and the patient walks with a typical waddling gait when he tries to move on in one piece, as if carried down a solid block of wood.* The whole aspect of the patient centers in the absence of the expression of rigidity.

The face presents the patient's story with large. The term commonly used to describe it is "mask like," and it is a very apt description. In these cases give the impression of wearing a mask. The face is dull and often gray, the eyelids are often heavy, and the expression is flat and inferior. There is not an element of forced gaiety, for the patient can and will perform all the actions involved. The best description of this appearance

I have not heard instances of, but by the wife of one of my patients, told whom I could not say I was a doctor. She is doing her usual work, and has not been confined, though apparently somewhat older and obviously much in a fixed, stiff condition. And it had commenced. I did pass it in a minute and could not be kept on it again.

It is a hope when the patient is lying, which is the least and attitude are most strongly expressed on the lower. The most marked cases spend their time lying on the back, with nothing but a continuing back into open, moving from an expressive face of the patient, and moving or speaking or reading, and apparently taking little or no interest in their surroundings. Then back the bed clothes, and with an occasional eye will look some little from rest that the hands will still move but not touching each other, and the patient will not move the head of the hands the effort not touching the mattress. There is a great deal of extreme discomfort in the normal state, yet these cases will continue it for hours, and patients may be present the hands being held for a considerable time as they proceed in which they are placed, however uncomfortable or inconvenient.

The speech is rapid as far as the natural manner of speech is concerned, but like the last a lack of expression and sentences are delivered in a dull flat monotone. There is a characteristic interval before the patient begins to speak. This is so marked, that on several occasions when taking a patient's history I have asked a question and apparently receiving no reply have looked up to repeat my question or was the patient for silence to be met with the reply as I looked up. The slow starting is part of the symptoms of hysteria which is usually well marked. There is a general and constant movement and the patient is unable to move his limbs easily. He would often remark that these patients are too slow to do any useful work as the words, e.g. polishing bright work.

Sometimes, but not usually, there is a degree of stiffness. One of the most marked cases I have ever seen was the quickest solver of cross-word puzzles in the ward, but on the other hand another would say for hours over a puzzle and produce only two or three words. I passed this latter patient in the street one day when we were both in workmen, that he recognized me, was obvious, but he did not salute and I had time to see that he could not see me working quickly enough for him to notice that he should salute or to notice the nature before I had passed him.

Disinvolvement and indolence are not uncommon, and some of these cases spend the day lying asleep whenever they are down. Frequently all cases are to a greater or lesser extent tremulous, and when the tremor is of a gross nature type, which may prevent the patient being his home as doing up his buttons. In some cases the tremor is localized in any limb or one group of muscles, or in the lower limbs or upper limbs, in other cases it is generalized. The tongue is almost always tremulous, and on several cases I have noted tremor of the hand muscles on grasping of the tongue. One case exhibited fine tremors of both hands, and in addition

in the present of converging patients of extreme degrees. As a rule, even when converging eyes are in such an extreme position the field of the two standing together would not be very noticeably less than the field of a few months' infant, with binocular vision in the lower limits. Considerably expanded peripheral vision is or is not uncommon and usually affects the legs, the following statement of my subject's vision is however almost in every case true of the child, while has been noted and often there is, attention to the act of looking which occurs less frequently than is normal. Esotropism is sometimes present.

Binocular vision is rare, but ocular signs are met with. The nasal eyes are incapable of the pupal and alterations in their reflexes some degree of paralysis of accommodation and convergence, occasional diplopia, especially when the patient is tired, and myopia which is very irregular and more marked in the vertical direction. The patient's appearance does not help his condition—he is small, with the characteristic type of rigidity which has been called "rag wheel." On generally moving the head to the left with a series of jerks, movement of the being over of a complete. This is not an accurate word, but the expression suggested in the literature is a difficult one to describe—it is less head and motion than that which a rag wheel would produce. It is connected with the higher or complete rigidity of spastic paraplegia, in which movement is free when once the initial movement has been achieved.

Tendon reflexes are exaggerated; the abdominal reflex may be absent. The development of the development shows no abnormality except perhaps a slight increase in feeling reflexing substances.

All subjective symptoms these patients experience chiefly headache, vertigo, diplopia and a feeling that the brain is not working properly. One of the most marked features of these cases is that symptoms and signs are utterly irregular. The eye signs particularly exhibiting a transient character. Double vision, vertigo, diplopia, and myopia may be present one day and absent the next. It is almost true to say present one moment and absent the next. The combination of symptoms and signs changes from day to day so that one day the following exist, "rag wheel rigidity much less diplopia present for ten minutes, myopia marked, and the next patient very noticeably rigidly marked as diplopia or myopia." There are also undoubtedly general symptoms in the condition.

With regard to prognosis I cannot do better than to quote from Hall's monograph. "Knowing the irregular progress of the disease one feels that a positive statement as to complete recovery cannot be made in any case, and sufficient time has elapsed. As yet we do not know what length of time may be deemed sufficient. The present tendency appears to be to believe that the earlier the onset of Pseudomonas the better the prognosis, but from a purely human standpoint, experience shows that recovery is seldom early or complete enough to justify retention of the sufferer in the service."



I raise the point of view of diagnosis if not, I feel inclined to quote from a hospital case sheet of some Parkinsonians, who have marked the right of showing how these cases come under observation —

(1) *Dysgonia musculorum*. Patient had been under observation in the ship for six months on account of his apoplexy. A very accurate description of Parkinsonism was sent to hospital with the case, describing the signs and symptoms. There was history of sudden drowsiness and delicate shivers, two years previously. Parkinsonism very marked.

(2) *Dysgonia disease of nervous system*. Patient of middle-aged occupation for dock and gun men to be peculiar. No history could be obtained of any acute attack. Parkinsonism very marked.

(3) *Dysgonia neuroticum*. Reported to self-complaining of 'nervous' History influenza and rheumatism two years before. Case then previous cases. Parkinsonism very marked.

(4) *Dysgonia disease of nervous system*. Reported himself feeling his legs very nervous and that he was unable to carry out his duties. History of softness and nocturnal restlessness, five years previously. Parkinsonism very marked.

(5) *Dysgonia observation marked*. Was placed in command of a report for being asleep on duty. History of influenza, five years before followed by neuroticism. Parkinsonism very marked.

(6) *Dysgonia taken for cold*. Reported to sick by wife symptoms of gastric. No history of any acute attack. Parkinsonism marked.

(7) *Dysgonia observation marked*. Reported at sick bay that he had not slept for a fortnight. Said to be queer at his quarters. History of delicate shivers for a fortnight one year before. Parkinsonism marked.

(8) *Dysgonia vertigo*. Reported at sick bay complaining of giddiness of one week's duration. Only history was that his wife noted a change in him three months before. Parkinsonism very marked.

(9) *Dysgonia psychomotor and observation*. Dringht in the sick bay by his petty officer who said he was in a dazed state and for two days he could not be persuaded to do any work. History of softness, four and a half years before. Parkinsonism marked.

(10) *Dysgonia meningitis-vascular epilepsy*. Went ashore with gastric symptoms and weakness of arms and legs. History of transient shivers on two consecutive days, and severe frontal headaches a year before whilst under treatment for gonorrhea at hospital. Also a history of treatment for meningitis-vascular epilepsy vague nervous symptoms and a peculiar. Parkinsonism marked.

In the majority of these there something unusual was noticed in the sick bay about the patients expression, and such known as 'a marked expression,' a fixed stare. In two cases. The above cases are illustrations from the following points of view —

(1) The frequency with which the diagnosis is raised.

(2) The fact that in the majority careful enquiry elicited a history



members of the family will write pages of letters—about the last space on the large memo sheet on the proportion of vitamins B and C, or the diet prepared by the excellent cooking staff in the methods employed in preventing the spread of meningitis, measles and whooping cough—all these are controlled in order to be correct or accurate.

When coming up Harbor one last year ago in the outgoing ship which I was serving it was pouring with rain—we passed along under West Covey—and I looked out at the Improbable and remained to the gods who was standing beside me. "May the gods protect me from ever being sent to that job." A more astonishing coincidence so widely spread than the one of India laid together I have never witnessed. However, eighteen months later when I prayed might never happen next to you and I found myself standing at same table of others at the Training Establishment Improbable company Improbable I Ship Patrol, Improbable I Ship Armament, Improbable I Ship General, Improbable I Ship Control, and I Ship Control.

Also, how often does first impressions go wrong. For very soon I found the Imperjorials to be the most interesting appointment from the physical, psychological and method point of view that I ever had. For my regular salary of about £200 a week, the travel, more cover than a training establishment, I think the best way to learn a central point of the inner workings of the Imperjorials would be to observe the process of evolution of a boy from the time we get the wire telling us of his arrival at North Road station, until he emerges a fully qualified defender of our liberties and honours.

The various new entries in this as they are called locally, come at North Road station from practically all parts of the world, from the Islands of Southeast Asia of Ireland, South Africa, Canada and Hong Kong. They are met by a corporal of Marines, who numbers them and forwards those straggling stragglers from the station to the flag boat moorings where they, unbeknown to the ship, with stories of what they have hit it countries as the and the flag ship to be seen leaving a turn to get the Navy. As these boat comes alongside they are received with many cheering, courtesy by the old hands, boys who have passed possibly three weeks previously. Having mounted the companion ladder with beating in row and jumping shouts, they are received by the officer of the watch, who, somewhat, knows the crew in the regaining party about on duty, and from that moment the welcome begins. The regaining party observes all the welcome party officers and every one of the establishment who has to find the boys with some have been especially selected, as much of our three times as home it would be apparent that they really possessed hard hearts but these persons holding under such extreme.

The reigning party often, with an ignorance such as our laureate was known by the reader of the record of Denmark, implies to them the things which they must do, such as making themselves acquainted with all nations

hardly and using the word "yes" to every individual meeting a point in the list who explains the things which they must not do, especially that they must not go to the city with any help outside. The procedure is then repeated at another meeting, and so, in the days of ignorance and confusion all sorts of rumors spread, however true; all old individuals all money, including money given to them by the government, were taken away and redistributed to the young, those under who, when the war ended by itself, are now, as we know,

Thank you for asking me, your honor, since I haven't used the right of a plaintiff to sue before I have only read about it. On the conclusion of the hearing, however, the matter is next passed into the hands of the jury. Chief justice, who takes him down to the court-room some back and prevention has with a really good suggestion. This has been found to be essential, in most of the days were many times learning and then shed this, are given most members of the meeting office. But in most cases the year 1818 follows have been this city to present them at the ordinary individual case.

After the hammock supports the boy penetrate to the back, and a male to grasp himself with soap and water and disinfecting. his crying clothes in tubs or in a bin, and he is supplied with a pair of shorts, blouse, jumper, soap, and a peculiar sort of soap according to local custom locally in a glass. It is now time to. For the first few days in the hammock, as along the boy could be leave the moral of doing it for himself. To sleep a hammock properly even to get into one, requires some doing, and it is always an undesirable source of amusement to watch the newly arrived boy attempt to get into his hammock and fall out of the other.

Next day the recruit meets the captain, who goes through his papers, takes to the boy given him above, and then signs the papers. With this signing of the papers by the captain the boy is officially entered into R.M. Navy. Next he is examined, examined by the dental surgeon, and a note made of the treatment he may require in that department. This is followed by an educational examination, which includes arithmetic, reading, writing, dictation and general knowledge. On the result of this examination has placed in a class suitable to his mental attainments. He is kept on the new-entry class desk, learning to write, to look after his clothes, to keep his mess clean, and also during a little drill, until his components number about forty, when they are formed into a class and put under the charge of a detached officer, assisted by one warrant officer, two pattern makers and two gunsmiths as instructors.

There are now 6 women in the establishment, namely, Edna, Hedy, Fred, Elsie, Nellie, Elsie Gertrude St Vincent and Hannah, each of whom is subdivided into two classes, and each class has been placed as follows in the training course as an example. In addition to the ordinary school teaching he is taught, equal drill, swimming, book-keeping, and penmanship. He is also made to keep his body clean and his clothes clean and shapely. He receives lectures from his devotional officers on such

significance. "Why are there a Thryx, Chamaea of the desert, 'Type' in shape, and 'Naevia' in form? He also notices the form of the combined short- and protractile legs—viz., hyaline and hooked maxillae. There has previously been controversy about the chelae. He is criticized in assuming that a swimming test which can be passed before he is rated a first-class herpetologist is swimming four lengths of the tank and swimming about for three minutes without fully drained to a stick man. In no part of the curriculum are patterns and most required more than by the officer in charge of the swimming when he is faced with nervous and backward swimmers. His object is to teach swimming without rest time. The reasons for this, he explains to them, that there is really a lesson in the tank and he speaks largely in the water with them. How he carries her apparatus and pool indicates it is necessary to use

The dramatic system as practiced in the Training Service has made its commitment to it, nothing, else could so better playing for the other team support. One also goes all out to beat the other else and in this way the best is produced to represent the Service, again, the Service competes with one another and then the best is selected to represent the establishment against all comers. I can state without fear of contradiction that as an inmate of the community there were hardly ever those who felt by the loss of a Service for those detained either. During the last two or three years some prisoners have produced from absolutely new material, who did very noticeably against some composed of people who had played the game from their earliest childhood. Again facts come from the establishment carried practically everything before them in various capacities in the neighborhood. To say the expression of a student of the War College the dramatic system in the Training Service is a controlled direction performed by the dramatic officers with its sustained emotion carried out by the subordinates, guards and instructors, to that every individual has a place to them, each with a role and his shortcomings threatened. Other important persons in the Service whom I must not forget to mention are the petty officer boys who as inmates of their personalities and powers of command are appointed to rule the others and who are prepared to punish in which no one

**Keywords:** *Self-esteem, self-esteem threat, self-esteem threat sensitivity, self-esteem threat sensitivity scale, self-esteem threat sensitivity scale-2*

- 1-20 Call maintenance  
 1-21 Call handpick strategy and wet hairbrush's legs  
 1-22 Shampoo strategy and wet hairbrush's legs till in for inspection. Call the  
     boys. Look up and show hairbrush  
 1-23 Check water wash, show with. Shampoo finished for both in back  
 1-15 Stop on north  
 1-24 Assembly. Lower and dress on lower. Close shop  
 1-18 Shampoo for both till in on the upper part of their respective shops  
 1-16 " "  
 1-17 Assembly. Personal space. Start getting. Shampoo for personal till in  
     shampoo.

7:30	Break. Cooks
7:40	First part of dinner. Freshness
7:50	Now. Cooks show men dress in "1.2" (Roman) for dinner, showing of the day
8:00	"1.3"
8:10	Assembly. Stand fast, speak in "1.2" show up desks for dinner. Kitchen party full in
8:20	Cooks and waiters in dress
8:30	"1.3" Field classes get their robes
8:40	Dinner. Prayers. School inspection. Instructions
8:50	Stand ready
9:00	"1.3" Carry on instructions
9:10	Field classes taken over
9:20	Secure. Stand by desks
9:30	Quick
9:40	First part dinner. Fall in for dinner
9:50	Dinner
10:00	"1.3"
10:10	Now. Cooks show up men dress
10:20	Kitchen party full in
10:30	Vesperal dinner full in outside examination classes
10:40	Assembly show up men dress
10:50	"1.3" Field classes full in
11:00	Assembly. Instructions.
11:10	"1.3"
11:20	Prayers
11:30	Assembly. Stand getting. Stand for attention. Work clothes
11:40	Stand
11:50	Stand into right clothing
12:00	Quick
12:10	First part dinner. Tea
12:20	Now
12:30	Assembly. Show up desks. Stand for desk. Night school classes in
12:40	Kitchen party full in
12:50	Cooks
1:00	First part dinner. Prayers
1:10	Now. Cooks show up men dress "1.2" Men dress everyone full in in "1.3" and "1.4"
1:20	"1.3"
1:30	Assembly. Stand with both hands and wings (Prayer — Trade and hands are to be shown by assembly)
1:40	Stand by kitchen in
1:50	Now in
2:00	Stand — full in prayers
2:10	Stand

On referring to the time-table of daily routine it will be seen that the character of the training establishment before us the whole day (from 6:30 a.m. to 10:00 p.m.) and by all hands to do and every man in whom that is — such things as all hands want. Although this time-table may appear strange, it obviously agrees with the boys whose whole appearance shows, they become alert, bright, self-confident, and maintain an attitude of an undisturbed degree. It is a well-known fact that after three months in the military it is impossible for any of them to get into the civilian clothes in which

they (these) thousands for us with money and knowledge, and for an advancement in position, for almost in acquiring position. His statement clearly lay to one who is usually clever at his technical subject, and his point after repeated discussion shows that he possesses exceptional education. Consequently so that he is granted the extra period of tuition to enable him to get his last term's credits on the last grade of the ladder which leads to advancement rank.

In conclusion, it may be of interest to include a few figures to indicate the great work which has been done on the *Japsenbelle* in the past —

Number of boys entered since September, 1913 —	50,642
Number of boys entered during the war —	22,472
Number of boys who deserted —	10
Deaths —	61
Discharged —	859
Discharged as unsuitable —	28

At present thirty boys on an average join per week and boys are constantly drafted to ships serving at home and abroad. Wednesday, Saturday and Sunday absences are recognized as half holidays in the establishment. The boys are allowed shore leave to Plymouth and Tientsin. On these half days the ship division of boys to work in the extension fields, where all kinds of sports are engaged in.

I trust that my readers will realize from this very suggestive paper the great work H.M.'s *Japsenbelle* is doing at present. It is serious. "Take up a child in the way he should go, and when he is old he will not depart from it." I feel persuaded that although many of our boys may develop a taste during their service at ordinary games and sports which cannot be used in the war they will turn up troops.

It has been said that Waterloo was won on the playing fields of Eton. I am confident that the next great sea fight will be won in the playing fields which are represented by the chessroom, gymnasium, boxing, football and football grounds of the *Japsenbelle*.

#### A PRIVATE OUTBOARD BOAT RACE

By JAMES LAWRENCE W. J. EAKIN, R.N.

WHILE H.M.S. *Shallop* was steaming up the coast on Tuesday November 14, 1916, against a north-east gale, the ship being on a daily trip with heavy seas, a party was invited on the horizon at 1.30 on the evening with all eyes on the coast for it to find the way. Some time afterwards at sunset and about twelve miles from the nearest land. The horizon was full of people on board who were lighting the houses, and a Japanese steamer, which had arrived on the same day as from home, was standing by, but she could do nothing as the sea was too heavy. H.M.S. *Shallop* closed on the Japanese ship and tried to find out, by signalling, the state of affairs and what help was required, but no proper reply was forthcoming.

morning. Half an hour later the *Singap* belonging to the same company came to the scene and managed to anchor ahead of the burning ship, having a very good lookout, she lowered a netman by an officer and eight Chinese seamen with a life pump. This boat was skilfully handled and managed to get alongside the burning

The *Blackell* immediately took up a position astern of the *Singap* so that the lifeboat was exposed, so that her crew might be picked up. It was noticed that the lifeboat left the ship quickly and drifted across towards *Blackell* and from the merchant service officer, who had an account which sounded distinctly south of the Toned, it was ascertained that the ship had been pirated and set on fire several hours before and that several parties were still on board. Immediately an armed party of Marsehallesse changed of an officer manning the lifeboat came toward ahead of the burning ship and then went back to go alongside. This was successfully accomplished and before long the parties, Chinese or number, were rescued and secured with ropes. H. M. S. *Blackell* had now full command of the situation and good communication was established, one of the armed party of Marsehallesse sent on board the *Singap* being a signaller.

It was now ascertained that the *Singap* had left Amoy on Monday morning. She had on board the usual four letters guards which are issued to all ships in order to protect them from being pirated at sea, or to guard distinctions amongst the Chinese storage passengers. In the afternoon the parties who were travelling as passengers suddenly overpowered the Indian guard and took possession of the ship and of the arms belonging to the ship's officers. Parties armed with revolvers, pistols and knives, were posted all over the ship and the captain was ordered, at the point of a revolver, to take the ship to Hong Kong, which is a great prize for a Chinese territory.

Having no alternative, he complied, whereupon the parties became less threatening and more confident. The officers not on duty and one European lady passenger were allowed to use the ship's wireless cable, being guarded outside by armed parties. The chief officer found that the parties had decided to retrieve his revolver and the second officer had managed to return his, so concealing these weapons they waited for the opportunity to use them.

About midnight three two officers volunteered to the land party to relieve the captain on the bridge, and this was agreed to. The officers took themselves as interesting as possible to the two armed parties on the bridge and told them that as one and a half hours Chinese light should be visible. When the light became visible the second officer shouted for the parties guard to move to the end of the bridge and see for themselves. This they did and by so doing gave the chief officer the opportunity he was looking for. Seizing a 14 lb burning lead he stood down the gang to guard, smothering both machines. The numerous parties were dispersed and the two officers rushed to the cabin where the other officers and



European lady were captured and released them, taking them back to the bridge which was to be their stronghold. By this time the alarm was raised and there were rushing men on every direction. When a pirate approached the ladder leading to the bridge he was shot, and when one of the others dashed down and collected his weapons and ammunition. Before long the bridge was quite well armed and fighting was going strong.

The chief engineer, who was still in the engine room guarded by pirates, was now used as a shield by them for a fresh attack on the bridge. Finding this attack in front of them, they made towards the ladder to the bridge, but the attack on the bridge stopped for and the engineer fell with a bullet in his left leg, so that the ascending pirates behind were left a lone target, which was taken full advantage of by the soldiers, and the pirates were scattered in every direction. The pirates now realized that all had up to they set fire to the superstructure in the hope that the stronghold would be smoked or burnt out, but the fire was a blessing to the ship's officers because, firstly it would draw a passing ship's attention, and secondly, ammunition was by now nearly exhausted and the fire would help to be a barrier between them and the pirates.

When the smoke became very dense the captain ordered the boatswain who was on the fore-castle, to let go the discharge anchors, which order was immediately complied with. The ship having lost steaming power due to the fire not having been attended to, and having hardly any storage way coming, caused towing the frames and hence, smoke to blow off, so that the pirates had the full benefit and had been defeated at their own game. The pirates now realized that they were defeated, and seeing a ship on the horizon some of them got into the two after-deckboats and made off. The captain now lowered his only lifeboat not having taken her, and sent the European lady in a, manned by two ship's officers and three Chinese sailors, as he expected the ladder to explode and the ship was in danger of sinking.

Two ships were sighted and "help" was wanted on the spot, but no attention was paid until the Japanese steamer *Ango Maru* and the British came on the scene.

The fire seemed to be spreading, so it was decided that the British were to run along-side the steamer. The ship managed to do this was unable to lie alongside and pump water onto her as the sea was too bad and the ship were bumping dangerously, so British had to get clear. As soon as the fire was got under control by the boats on board steamer, the warship left at full speed in the direction of Blue Bay in search of *Swampy* hideouts.

Just after noon a lifeboat was sighted, and on going close alongside it was found to contain two pirates, who were ordered at the point of the rifle to come alongside and the pirates were taken on board. While the pirates were being brought aboard one at a time, one pirate jumped over

the two lifeboats were immediately thrown to sea but he refused to take them and drowned in less than a minute. The lifeboat was used to search for the body but it had sunk, probably owing to the amount of fuel in the portain.

Wireless messages were sent out in every direction, and soon airplanes from H.M.S. Hermes were searching the area for the missing lifeboat. Later a lifeboat was reported floating upside down, and it was noted that the body and officers had been picked up by the Norwegian steamer *Amoragott*. The *Shoal* and other warships continued the search for the upturned lifeboat but having no luck, gave it up.

A wireless signal was sent by a tug and the *Seawing* was taken in tow to Hong Kong, where she arrived at 2 p.m. on Wednesday. The parties on board the *Shoal* were searched and handcuffed. The loot found on them consisted of two thousand dollars in cash, watches, ladies' jewelry and one loaded revolver, but it was found on interrogation that the remainder of the arms and ammunition had been thrown overboard on sighting the *Shoal*.

On arrival in Hong Kong the alleged parties were handed over to the police, the tug being thereon captured and eleven killed or injured in the *Seawing*, now captured by the *Shoal* and one known to be drowned, making a total of thirty-four. Three of the captured parties were suffering from wounds.

## CHINESE AND PORTUGUESE NOTES.

### AN AMERICAN METHOD OF TREATING CHANCRE.

By MRS. LAWRENCE WILLIAM FLECK, M.D. N.Y. N.Y.

When H.M.S. *Orlando* stopped at the American island of St. Thomas (Virgin Islands, U.S.A.) in November 1921, opportunity was taken to visit the local hospitals, particularly the American Naval Hospital where research was made on the subject of venereal diseases and their treatment. As regards syphilis and gonorrhea the American methods of treatment do not differ much from ours, in syphilis changed, however, the American naval doctors mean at that time more on application which they designated by the term 'Spiral' and he which they claimed a good percentage of rapid cures. As my report may vary a little I followed up with the two principles, then dispensing and the method of using them.

The following is a copy of the two prescriptions —

To a drug used one made into two prescriptions, and for most of better success have been called 1416 and 1416a. In order to place the book reader in a two-way that the corresponding be done by following the instructions very carefully.

## Formulae table

Oil of cedar	1 gram
Oil of cedar	10
Oil of cedar	50
Oil of cedar	100

The preparation is made in a glass-stoppered bottle by using 1. The oil of cedar is thoroughly shaken, several times a day for five or ten days. Then the rest of the oil and perfume are added. The mixture is then shaken for use. It should be shaken before each application. The method of application is as follows: The affected area is cleaned with soap and water, then dried with cotton, and is covered with the ointment to be tested, or laid on the palm of the hand and thoroughly rubbed in by moving the bottle and giving it a few short, vigorous movements. The moist surface of the ointment is now placed upon a clean glass plate, and held in place by glass and adhesive. Should the hand be in the normal position in the normal position, it is only necessary to place the hand over the ointment. The patient is instructed to keep the ointment in place, and return the next day, by which time every treatment is usually clearly evident and limited. The subsequent treatment is as follows: If, on subsequent days, the treatment is not clearly defined after the first treatment, repeat the treatment again to repeat the following day. In very shallow cases it may be necessary to make a third application.

## Formulae table

Oil of cedar	1.5 gram
Oil of cedar	10
Oil of cedar	50
Oil of cedar	100
Calculated surface (2 per cent)	100

In a rule, after the second or third day the ointment begins to disappear, leaving a clean, granular surface, which leads with remarkable regularity. The constant treatment should be applied daily until complete healing takes place. Ointment is not affected in the least by the treatment. Daily application of 10 to 15 to 20 to 30 to 40 to 50 to 60 to 70 to 80 to 90 to 100 to 110 to 120 to 130 to 140 to 150 to 160 to 170 to 180 to 190 to 200 to 210 to 220 to 230 to 240 to 250 to 260 to 270 to 280 to 290 to 300 to 310 to 320 to 330 to 340 to 350 to 360 to 370 to 380 to 390 to 400 to 410 to 420 to 430 to 440 to 450 to 460 to 470 to 480 to 490 to 500 to 510 to 520 to 530 to 540 to 550 to 560 to 570 to 580 to 590 to 600 to 610 to 620 to 630 to 640 to 650 to 660 to 670 to 680 to 690 to 700 to 710 to 720 to 730 to 740 to 750 to 760 to 770 to 780 to 790 to 800 to 810 to 820 to 830 to 840 to 850 to 860 to 870 to 880 to 890 to 900 to 910 to 920 to 930 to 940 to 950 to 960 to 970 to 980 to 990 to 1000 to 1010 to 1020 to 1030 to 1040 to 1050 to 1060 to 1070 to 1080 to 1090 to 1100 to 1110 to 1120 to 1130 to 1140 to 1150 to 1160 to 1170 to 1180 to 1190 to 1200 to 1210 to 1220 to 1230 to 1240 to 1250 to 1260 to 1270 to 1280 to 1290 to 1300 to 1310 to 1320 to 1330 to 1340 to 1350 to 1360 to 1370 to 1380 to 1390 to 1400 to 1410 to 1420 to 1430 to 1440 to 1450 to 1460 to 1470 to 1480 to 1490 to 1500 to 1510 to 1520 to 1530 to 1540 to 1550 to 1560 to 1570 to 1580 to 1590 to 1600 to 1610 to 1620 to 1630 to 1640 to 1650 to 1660 to 1670 to 1680 to 1690 to 1700 to 1710 to 1720 to 1730 to 1740 to 1750 to 1760 to 1770 to 1780 to 1790 to 1800 to 1810 to 1820 to 1830 to 1840 to 1850 to 1860 to 1870 to 1880 to 1890 to 1900 to 1910 to 1920 to 1930 to 1940 to 1950 to 1960 to 1970 to 1980 to 1990 to 2000 to 2010 to 2020 to 2030 to 2040 to 2050 to 2060 to 2070 to 2080 to 2090 to 2100 to 2110 to 2120 to 2130 to 2140 to 2150 to 2160 to 2170 to 2180 to 2190 to 2200 to 2210 to 2220 to 2230 to 2240 to 2250 to 2260 to 2270 to 2280 to 2290 to 2300 to 2310 to 2320 to 2330 to 2340 to 2350 to 2360 to 2370 to 2380 to 2390 to 2400 to 2410 to 2420 to 2430 to 2440 to 2450 to 2460 to 2470 to 2480 to 2490 to 2500 to 2510 to 2520 to 2530 to 2540 to 2550 to 2560 to 2570 to 2580 to 2590 to 2600 to 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shared across the population at all ages. On extending the model to a separate age-specific population, Pankratov found the structure of the age-specific and age-independent effects to be very different from the previous model. This suggests that the age-specific effects are not shared across the population at all ages. This is in line with the above view. Group leaders in the two age-specific groups that participated in the intervention showed a different pattern of change between pre- and post-intervention, whereas the non-participants in the two age-specific groups did not show any change. This would appear to be a useful method to use in

Table 10. *Table 10. Data on the number of fish caught at different depths and locations in the study area. The data are presented in the following table:*

James H. Thompson and Florence Thompson—all it means was that as white Americans, interested in their work, they were permitted or requested that a non-racial statement be so declared by the situation. This point, even if that is not true, is hardly one involving his so long as his moral sensibility. Some statement, I think, is rather great.

(4) Inoculum was 0.12 inoculated with *Shistosoma japonicum* which was found in the 3.4.1. Inoculum suspension. After inoculation, the host (the cow, pig, dog) had suffered considerable pain which yielded immediately to treatment. The observation in this case observed a remarkable tendency to spread, but symptoms failed to manifest in the animal. For 5 months a progress picture after the event. One week later a recurrence of the disease was observed which resulted in animal treatment.

Cover of ordinary specimens have, as a rule, covered up under the treatment as has been elsewhere in the list of "varieties" but evidence lacking. A single appearance of this form of a specimen in both members of a species and in other groups has been sufficient to place it in parentheses in the list, in which it is considered as a variety. The case of *Calla* from the *Calla* group. Some cases appear to be of a variety which is otherwise apparently under cover but have been observed. The results obtained in these and the other types of cases mentioned show that there is a very definite hold for other such treatment as the practice of *Calla* group.

#### A CASE OF BLOOD INFUSION FROM LESIONS AT THE ROOT OF A MILDLY DECAYED TOOTH

For the purpose of determining the appropriate number of samples, the following equation was used:

[The following note may be of some interest in view of the discussion which has recently been going on in the medical press as to the subject of tubercular leprosy. One should draw lessons.]

[illegible]































1. The first part of the document is a letter from the President of the United States to the President of the Senate, dated January 1, 1901. The letter is signed by William McKinley and is addressed to John D. Long. The letter is a copy of a letter that was sent to the President of the Senate by the President of the United States.

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1. The first step is to identify the problem. This involves understanding the current situation and what needs to be changed.

## REFERENCES

1. *Chrysomelids* placed on the 10th day of June, 1899.  
 2. *Chrysomelids* placed on the 10th day of June, 1899.  
 3. *Chrysomelids* placed on the 10th day of June, 1899.  
 4. *Chrysomelids* placed on the 10th day of June, 1899.  
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 7. *Chrysomelids* placed on the 10th day of June, 1899.  
 8. *Chrysomelids* placed on the 10th day of June, 1899.  
 9. *Chrysomelids* placed on the 10th day of June, 1899.  
 10. *Chrysomelids* placed on the 10th day of June, 1899.



to the Senate, and the Senate has no objection to the passage of the bill. The bill is passed by the Senate, and the President signs it into law.

#### 100—Bill of the Senate—House H. R. 100 and H. R. 101

100—H. R. 100—100—100

The bill is passed by the Senate, and the President signs it into law. The bill is passed by the Senate, and the President signs it into law.

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#### 101—Bill of the Senate—House H. R. 101 and H. R. 102

101—H. R. 101—101—101

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#### 102—Bill of the Senate—House H. R. 102 and H. R. 103

102—H. R. 102—102—102

The bill is passed by the Senate, and the President signs it into law. The bill is passed by the Senate, and the President signs it into law.

#### 103—Bill of the Senate—House H. R. 103 and H. R. 104

103—H. R. 103—103—103

The bill is passed by the Senate, and the President signs it into law. The bill is passed by the Senate, and the President signs it into law.

#### 104—Bill of the Senate—House H. R. 104 and H. R. 105

104—H. R. 104—104—104

The bill is passed by the Senate, and the President signs it into law. The bill is passed by the Senate, and the President signs it into law.



## NOTICES.

The Editors of the "Medical Officer" are glad to accept of contributions, communications, and general papers, on subjects connected with the health of the Army, and will endeavor to publish them, provided they are of interest to the profession.

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The Journal is published by the "Medical Officer," at the "Medical Officer's Office," at the "Medical Officer's Office," at the "Medical Officer's Office."

The subscription is £10 per annum (postage included) payable on January 1st of each year, but should a subscriber wish to commence at any other quarter he may do so by payment of the sum of £5 per copy. All communications should be addressed to the Editors, "Medical Officer," at the "Medical Officer's Office," at the "Medical Officer's Office," at the "Medical Officer's Office."

The payment of subscriptions by Banker's Order is recommended, as it relieves the Subscriber of the necessity of forwarding money each year and simplifies the keeping of accounts.



Journal  
of the  
Royal Naval Medical Service.

Original Articles.

THE ORIGIN OF THE MEDICAL SERVICE ROYAL NAVY.

By HENRY CARRINGTON, F. R. S. 1892-1893, VOL. IV.

It is extremely difficult to trace the origin of anything connected with the Royal Navy. The same source is of such antiquity, and it came only long so gradually that no precise estimation can be made backwards with as much certainty than Darwin could trace the origin of species; there is always a deep past to which record must be made to compensate.

Merely to state the origin of the present rank, grade, branch would present no difficulties, as it was established so recently in 1794, but the object of this article is to record the number of a long march into the conditions prevailing prior to that date. These results have not been so satisfactory as was anticipated. Various errors, very much statements on the unexplained features of the British Navy, and the records at the Admiralty, obscure these little light on the subject. By piecing together the scraps of information obtained from such sources as were available it has been possible to present a sketch, large from which some idea can be formed as to the manner in which the sick and wounded were treated on the early days of the British Navy. Some of the recorded facts are certainly ungenerally known and their collection will be a long, arduous, and possibly useless task, and had been so to continue the period of the earlier parts of this short history.

Until so recently as 1801 the sick employed sailors and those employed sailors were two totally distinct bodies, and were not inter-changeable. It will therefore be necessary to trace separately the history of sickness on board and on shore up to the date.

SECTION I. EARLY HISTORY.

Up to the time of the Commonwealth the sick and wounded from the Fleet appear to have been treated as best as possible, and left to find the

described. The Commissioners, however, did make some attempt to treat the sick better than French and Chinese had treated them. Civilian hospitals were ordered to provide quarters for the sick, and the Government did its utmost which others were to be last of all in the most wretched place (1). The last Mayor of London wrote in 1801 in the name of the citizens in September, 1802 and in 1803 letters were sent to the Governors of St. Bartholomew's and St. Thomas's Hospitals regarding them in general terms for the accommodation of the sick and wounded.

On September 20, 1804 a Board of four Commissioners of Sick and Wounded was established with officers Laing, Baines, and assisted with power to send the sick and wounded sailors to any civil hospital and to naval practitioners up to £50, and pensions up to £100 4s 4d (1). In 1805 Charles II appointed the four Commissioners at a salary of £800 each, but in 1802 the business was transferred to the Commission of the Regular Office. In 1809 the Commission was reduced to three who were entrusted not only with the care of sick and wounded seamen, but also with the superintendence of medical stores, the management of naval hospitals where and when, the recruitment and appointment of medical men, and the maintenance and evolutions of prisoners of war. From 1746 to 1769 the Board consisted of four instead of three Commissioners, from 1770 to 1776, of two only, from April to November 1776, of three, and from 1776 to 1780, of four. Its offices were in York or Hall (2).

Below special naval hospitals were built the sick and wounded seamen at naval ports were treated in lodgings chiefly taverns, and attended by civil practitioners. In this manner the present system of employing surgeons and agents came into being. Later they were located in civil hospitals under contract. The first hospital taken up for the use of the sick and wounded was at Plymouth in 1694, but soon after this date hospitals were established at all the principal ports and at Deal, Sandwich, Oveles was fitted up as a hospital. Reference is made to the Portsea Hospital at Gosport, near the site of the present Forton Barracks, when in 1718 some seven hundred beds were available for the treatment of sailors at a per capita charge. The building of Fleet Hospital was commenced in 1744 and completed in 1760. It was however opened for use in 1764, and two years later Plymouth Hospital was commenced.

In these new naval hospitals the nursing staff consisted of women only chiefly widows of interest and position whose only qualification was apparently a plausible tongue. Charles Dickens has very cleverly portrayed the type of woman. In 1760 a mistress was appointed to each hospital, and in 1760 her salary is recorded as £15 per annum. The women were paid 6d a week, which was later increased to £12 a year, and they were eaten on the same scale as a prison a full diet, plus four ounces of beer. Old records contain many references to the drunkenness of these women, their drunkenness, the sale of drink, selling patients to surgeons and inducing the dying to make wills in their favour (3). It should

So far as is known from 1840 to about 1850 the medical service of naval hospitals was entirely paid distinct from the crew, or ship. The Nurses were (and are) not in appointments as physicians and surgeons, more or less permanent, the latter corresponded more closely with the present day paid medical officers. It is interesting to note that the physicians were always women and hence paid, thus the surgeons.

For some forty five years no information as to the working conditions in naval hospitals can be traced, but common interesting facts are found in the documents as in the Royal Naval Hospital at Malta and Plymouth, dated 1808. At this time naval hospitals were commanded by a naval officer not medical, as governor or superintendent, assisted by two lieutenants and, as can be imagined, there was usually considerable friction between the governor and the medical officers. Under the heading "Instructions for the Governor" we read: "All persons proposed by the respective officers to be employed as Lieutenants Nurses, Woundwomen, or Berthwifes of our hands must be carefully reviewed by one of the Physicians or Surgeons of the Hospital, and you are to be perfectly satisfied that such persons be well adapted to the employment intended, before you authorize the Agent to admit them on the Hospital's service books. You are to observe that no person of the above description, who is to be employed who lives in short dress, five years of age if others can be obtained, and an engaging Nurse, Woundwoman, and Berthwifes the preference where merit may be equal, shall be given to the widows of veterans and Marines who may have served in His Majesty's Navy, but no foreigners are to be entered for the above services.

It is also laid down that there should be not more than one nurse to every seven patients. The hospital masters could be called upon to send the physicians and surgeons when necessary to attend the patients, and we know that the ladies carried the medicines and prepared dressings [4]. In these instructions the duties of the ward maids are also detailed. They were responsible for the linen, dresses, shoes and articles used for use in the wards. They were to see that the patients' sheets were changed once a fortnight and body linen twice a week. They superintended the conduct of the nurses and directed those for night duty.

In 1844, the Committee in Charge of the port was given authority and control over the superintendence of the naval hospital, and as this post remained so for the first time made a medical director general. The duty of these nurses was rightly in the hands of the medical officer, who was instructed to "strictly himself of the moral character, the bodily health, temperance, sobriety, business disposition and general fitness for the duty of the party proposing to her term, entered for the stations, and if after due trial she should be found unfit for the station, she is to be discharged.

These women continued to supply the nursing requirements of our naval hospitals for about 180 years, but in 1884 they were partly replaced by male nurses. These men were chosen entirely old persons who were engaged







...that not only that persons, after again was often seen, a person, to  
 and holding, and depend of the light of day in with it of that per-  
 forming nothing but a common, atrophy of the world, and of all of  
 from their own environment and, toward better, directed with eyes broken  
 in the light that surrounded them, and delicate of every immediate necessity  
 for people in that helpless condition. I could not comprehend how it was  
 possible for the attendants in some cases those who bring in the trade goods,  
 the price of the day in order to avoid them, as they were surrounded by those  
 who lay in the middle and entirely out of the reach of all company, made how  
 could I imagine how are found. These men would be able to administer justice  
 that were ordered for some, to that manner, when I saw how often by way to  
 be packed and stay himself, in his situation in a moment, then, at all times  
 under the hands of the work, and, having up his hand, your language but  
 keep their number with one shoulder was to find them his duty.

The following extract from the same source is also of interest:—

At a certain hour in the morning the key of the door was turned, all the doors  
 swung a small handful, and, as they were composed, for the moment, closed all  
 those who had come to repair before the door, when one of the doctor's nurses  
 attended with opportunities to dress them.

The date of "Robinson Crusoe" was by no means decided, for there  
 is described the unsuccessful bombardment of Cartagena by Admiral  
 Vernon, which took place in 1741.

That the authorities at home were alive to their responsibility for the  
 matter is shown by the fact that in 1876 one of the commissioners  
 already mentioned went with the first under Sir George Rennie, to the  
 Mediterranean to take care of the sick. In the United collection of some  
 except notes, preserved in the Admiralty Library, are to be found several  
 references to hospital ships, but it is doubtful whether the prospects there  
 recorded were ever carried out. The following brief extracts will show  
 that the authors of the sick and wounded did at least receive consideration:—

- 1791 The Navy Board in each hospital ships carrying a surgeon, two medical  
 assistants and a boy to the surgeon.
- 1792 The French directed the Commissioners to consider the means for sending  
 hospital ships more often. Every hospital to have six nurses and four  
 business men under the age of 50. Every ship to be manned with a crew of  
 sailors, and to have ordinary sailors a pay.
- 1794 In hospital ships the gun deck as far as allowed entirely for the use of sick  
 men. Besides to be an open place, in the deck for an inlet of air.  
 Instead of women men to be always employed. The night watches watch  
 by two, four and five at a time. Surgeons' orders and accounts to  
 be kept within call of the sick men. Every, whether there should not be  
 an order taken in the hospital ships.
- 1795 The hospital ships then attended the fleet in the Mediterranean had the  
 same or more provisions. Besides the usual accounts.

It is well known that at an early date a certain number of women  
 were carried on board ships of war, at first as an acknowledged part of the  
 complement and later surreptitiously, and that this practice lasted up to  
 Nelson's days. It is more than thirty that these women took some part in  
 the care of the sick and wounded.





without depot ships, the anti-quadrants, besides passing the medical examination board first they must be 35 years of age, able to read and write, and possess a fair knowledge of keeping accounts. After entry they remained on board the guard ships and drafted to working vessels as required. They were divided into three classes and paid as follows:—

Medical anti-quadrant attendants	1s. 6d. a day
Anti-quadrant attendants	1s. 6d. "
Anti-quadrant attendants	1s. 6d. "

Good assistant judges and pay were awarded to the two higher ratings under the usual conditions. Promotion depended entirely on the ceremonial requirements of the service at each of the home ports or on each of the foreign stations respectively; there was much inequality of advancement with reference to age and service. Their duties about consisted, under the direction of the medical officers, in providing for all the requirements of the sick, including administering the medicines, making the food and cleaning the sick quarters. They also assisted the medical officers in keeping the sick ward accounts and in the charge of their medicines, medical stores and surgical instruments. After entry they received no systematic training to fit them for their duties, and were entirely dependent on medical officers and observations for any proficiency to which they might attain, but it is not necessary to presume that the medical officers took considerable pains to instruct and train their men so soon as they were drafted to a sea-going ship. On their return from foreign service, of which there was in those days a considerable amount, they were supposed to be sent to the hospital of the port in order to gain experience in their duties. There is very good evidence, however, that this order was very imperfectly carried out. Some of these men were retained on board the guard ships to fill the duties of ships surgeons' postmen, &c. while those who did go to the hospital found that there was no system of instruction for them and that there was practically no employment in wards and laboratories.

Such then were the conditions under which the training of the sick was carried out in naval hospitals and on H.M. ships up to the year 1893. In that year a Committee was appointed "to enquire into the organization and training of the anti-quadrant staff of the Navy and the Herring Staff of the Royal Naval Hospitals." The members of the committee were:—

Rear Admiral Sir A. H. Mackenzie, R.C.D. Admiral Superintendent of Naval Reserves, Chairman.

Sir John Whitehead, M.D., F.R.C.S. Director General of the Medical Department of the Navy.

Captain Crompton L. Goswold, R.N.

First Surgeon Walter Hall, M.D., R.N.

Professor Richard Clark, Esq., Department of the Medical Director General of the Navy, Secretary.

The committee visited the naval hospitals at Haslem, Plymouth and



was to be made up by entering convales from the shore. These convales were paid for 48 a day until convalesced when their pay was readjusted with make up to be 48 a day for the period of protection; thereafter they received the progressive rates of pay as listed above.

From this system proved unsatisfactory, and considerable difficulty was experienced in obtaining suitable recruits. Consequently, an Order of Council, dated March 7, 1900 authorized certain improvements with a view to stimulating recruiting and the rates of pay were increased as follows:

Physician with both attendants	for 48 a day
Nurse both attendants	for 48 to 72 a day
Surgeon ship, with both attendants	for 72 to 96 a day
Nurse both attendants	for 120 to 144 a day
Chief with both attendants	for 96 to 144 a day

From this it will be seen that all ratings were to be absent from the shore. Sea going flag-rat, and harbor depot ships were allowed a chief with both attendants; previously, these ratings were allowed to recruit hospitals only. They were also authorized the establishment of three warrant boats out at each of the hospitals at Boston, Plymouth and Chatham, with the wife of Head Wardsman. The rates of pay ranging from 48 to 144 a day.

In 1902 Malta Hospital was also allowed a head wardsman of warrant rank and in 1901 Portland and Gibraltar were added to the list. In 1901 the lowest rate of pay of sick berth attendants was increased to 72 a day, and a dispensing allowance of 24 a day was authorized for chief sick berth attendants with both attendants and second sick berth attendants serving on board ships and in certain cases on establishments. A further increase in pay for all ratings was authorized in December 1911, and again in 1919. In 1915 all rates of pay were reduced, and the rates then introduced we still in force.

Sick berth attendants shore training	for a day
Sick berth attendants ship training	for 72 to 96 a day
Leading sick berth attendants	for 120 to 144
Sick berth petty officers	for 144 to 172
Sick berth chief petty officers	for 172 to 204 a day and 24 annual increments of 12

In 1918 commissioned warrant wardsman were made eligible for the rank of wardmaster (commencing on retirement after three years service as the lowest rank) and in 1921 this order was amended so that commissioned wardsman became eligible for promotion to the rank of wardmaster lieutenant and after six years service as such to the rank of wardmaster lieutenant commander, while still serving on the shore list. The establishment was fixed as 1 wardmaster lieutenant, 4 commissioned wardmasters and 15 warrant wardsman. The numbers are now 1, 5 and 11 respectively.

In 1901 members of the sick berth staff who qualified as surgeons were

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1. *Journal of the American Medical Association*, 1997; 277: 1001-1005.

The (empty) class in (1) is not a *Stellen* (employment) but a *Stunde*. One can deduce from that it is not a *Stunde* (employment) conditionally on the fact that, in other cases, there is a *Stunde* and employment together in it. In hypothesis in the claim, *position* is a *Stunde* concerning technical training status. In other questions of these, *position* is a *Stunde* about if a day again be a *Stunde* in a *Stunde*.

Although the volunteers are not staffed by paid, full-time nurses, and although we write the scope of this article the introduction of a staff is, at least, their presence in a community may be significantly changed.

The instructions for the Medical Officers of the Royal Marine Division (1941) are a good idea of the subjects as far as they go.

The prisoners were then assigned to Chatham Woodstock Farmstead and Plympton Hall as the inhabitants of the two former stations were in full compliance were reported as patients. Each colony was allowed an ordinary supply; a married dependency was an ordinary work as was noted for each said. The approach was selected from the two new stations of officers, and the duties went to improve the distribution of provisions and food, the cleanliness conditions and general state of the station. The nurses were usually the wife or widow of a NCO or private, and in charge of the bedding and linen. She carried the work in so that the nurses were attention to their duties, reported the female patients' status, and approved the cooking. The dependency was selected from the nurses for "purely" the medicines (which were to be prepared by the surgeons or assistant support) took charge of instruments, attended the medical officers on the ward in the ward and they read the work of other cases to see that the medicines were regularly and correctly given by the nurses. The soldiers took charge of the beds in the hospital and supervised the making of the patients, were that an infirmity was noted were brought into the infirmary, filled the mail boxes and made in each generally made. The work was selected from the nurses and widows of patients.

The women were selected from the areas of welfare of instance, as from men belonging to the domestic, but there is no evidence to show as what properties females and males were employed. Some of the instructions for this instance are worth recording. Domestic animals were to be washed with lukewarm water daily. On admission each patient received clean bedding and a washbasin, and was thoroughly washed under the supervision

ward's day rounds. The men had to see that the kitchen is employed when necessary, and that each patient was washed daily, for which purpose both a pump and a vacuum were used for every man in those patients. Bathing, shaving, and general cleanliness demands were provided with separate rooms, the nurses and personnel of the ward. Discharge was, however, the main line.

The employment of the nurses and order appears to have been gradually abandoned, and the nursing and cooking entrusted to nurses. These men were admitted their duties by the medical officer and possibly by the hospital nursing officer in the course of time, and acquired the necessary knowledge and experience. In 1897 the dispensers were sent to a naval hospital for 12 months course of instruction in the dispensing of medicines. From 1913 the marine dispensers have received the same instruction as private army and, forth afterwards at the naval hospital where about twelve months course in dispensing.

As the present state the nursing arrangements differ of the various marine infirmaries. At Deal and Portsmouth certain male nurses are employed in the wards and marine dispensers in all other duties. At Chatham and Plymouth marine dispensers are employed for all duties. The certain male nurses receive no special course of instruction, but are usually selected from prominent men who have had previous experience as dispensers during their period of reserve service. Guards are now trained marine cooks. At Deal and Portsmouth male nurses are still employed, but their duties are confined to the care of bare, bedding and patients' hospital clothing.

As already stated the records for interesting details of the average marine for nursing, the work of other days has been most disappointing, but it is hoped that such details as have been unearthed may be of some use. The author's thanks are due to G. G. PIERCE, Esq. D.M.C., Admiralty Laboratory and his staff for the great assistance given in the preliminary search for records and for much valuable advice.

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# THE ECONOMIC ORIGIN OF INTERNATIONAL TENSION and Social Economic Development

THE two problems, one of international relations and international order, respectively, and the other, that of a high level of economic and economic development, and economic growth, in the daily growth of the world, of the progress of the world, and of the progress of the world, are the two problems of the world. The two problems, one of international relations and international order, and the other, that of a high level of economic and economic development, and economic growth, in the daily growth of the world, of the progress of the world, and of the progress of the world, are the two problems of the world.

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Finally, it may be stated that questions of war and peace can no longer be judged by the old standards. By means of the development of science and technology, we provide the human factor. It follows then that in the future, the future, the future, especially will be applied to such other. It follows then that in the future, the future, the future, especially will be applied to such other. It follows then that in the future, the future, the future, especially will be applied to such other.

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of war and it is above all important to suggest new directions in the development of international organisations.

It is again true it may be argued that forces which have been so vital for thousands of years on the relations between peoples cannot be suddenly eliminated so that if a war in the future could not be avoided, nothing else would make use of this most powerful weapon if possessed in absolute warfare. But this logic compared with other methods of warfare is the more infamous even if one regards it as inhuman to allow national considerations to have any effect on such a matter (1). The development of explosives certainly presents for the view of the future, dangers analogous to those of gas so that any special interdiction of the use of explosives in gas is not would not be practicable.

A special danger has however been created for future wars, for the defenceless civil population which takes no part in the fighting, particularly the women and children of aeroplane attack, the towns behind the front and it is precisely the possibility of such attacks being made by the dissemination of hydrogen gases that compares up a particularly horrible picture. A convention forbidding the use of chemical warfare behind the front would reach a great step forward and such a convention should embrace all methods of hostile attack.

#### FINANCIAL DEVELOPMENTS

Too much has already been written concerning gas in the rapidly due to the introduction of various extremely dangerous air forces to add up conditions with these questions. All these questions are important as they do not affect the fundamental questions, but are only a consequential of the material change that differentiates this epoch from others in the past. This change consists in the fact that during the last thirty to forty years all industrial countries have had at their disposal technical forces which are continuously growing and which extend their human forces by the threefold forces spring from the exploitation of chemical and physical principles with being played by man.

Table I

	Production of coal in million tons			Amount of iron ore in million tons		
	1880	1900	1910	1880	1900	1910
Germany	18.7	28.1	32.7	1.7	22.7	28.1
France	8.5	15.0	17.1	1.1	1.5	15.1
Great Britain	51.0	115.1	20.15	11.5	24.5	27.7
Spain	2.4	3.4	11.5	0.5	0.5	11.4
U.S.A.	15.1	16.7	124.5	1.7	17.1	174.5
World Total	117	258	1,215	25.5	66.8	158.8

In emphasising the importance of coal, Table I gives the world production of the principal countries followed by a calculation of the amount of average capacity of being obtained from it. The figure is calculated as follows:

power used for transportation (Table II) use of motor fuel in 1935 is calculated using base consumption, less, percentage of the development of average use of motor fuel in the country. Such a factor as engine size by the introduction of volume horsepower increases 1935 and that thus the significance of the average use of motor fuel is 10 per cent in 1935 as against 5 per cent in 1930.

The significance is more evident when one calculates the amount of energy per head of the population (Table II). It can then be seen that present rate of use of the population has the use of four out to two horse power years. This is the essential difference between the present and the past.

Table II

	Millions of inhabitants	Index of motor horse power years	Index of energy per person years
Germany	1930	49.4	8.5
	1935	66.5	11.2
Great Britain	1930	22.4	3.9
	1935	35.5	5.9
France	1930	38.3	6.4
	1935	54.6	9.4
U. S. A.	1930	42.3	7.2
	1935	65.2	10.9

In 1935, then, the production of coal was as much as coal made, plus, a few, directly with manufacturing, and even was almost entirely reduced to its original use of one except the use of domestic, waste and the more efficient employment of hydroelectric power and wind. Today the losses produced by waste are much more important than coal power, and this important change in the history of economy has taken place within the very limited period of twenty to thirty years.

Gasoline and gasoline plays an important part, not only as a combustible with a high calorific value, but also, and this is the essential point, is motor which make use of 80 per cent to 90 per cent of its energy while a heavy steam engine can only make use of 15 per cent, or at the most 20 per cent of the energy and German manufacturers of gasoline reported as responsible for modern methods of locomotion (automobile and airplane) and this explains the fact that the principal industrial countries namely Great Britain and the United States of America, spare no effort to obtain possession of the most important oil motor. The gasoline industry in Great Britain extends dating from 1860. Quite lately especially during the war and in the post-war period, production has considerably increased, as can be seen from the following table, countries such as Mexico, percentage of no importance have rapidly come to the front in gasoline production.

Even today 1935 manufacturers improved methods of using oil so that Britain in 1935 an energy equivalent of 250 million horse-power years



and to that at least one hundred million, so that the savings in cost of coal is still less than as great as that of oil. The magnitude of what the French posterously call "white coal," *etc.*, water-power, is, among, is considerably less although it exerts a real influence, not on the price of coal, such as steam coal, and also on certain branches of industry.

TABLE III

	1939	1940	1941	1942	1943
U.S.A.	54	5,443	7,414	55,003	75,540
Europe	2	400	9,837	9,453	4,753
U.S.S.R.	0	0	0	2,366	97,729
Ukraine	1	15	107	1,071	1,560
U.S.S.R.	0	73	338	743	882
Germany	0	1	70	140	43
British West Indies	0	0	0	708	1,220
Total	57	5,921	17,669	68,980	113,927

The above figures represent thousands of tons.

Our daily life is thus controlled by energy, which must also prove as important as a disease factor in war. Even at the time of the wars of 1914 and 1918 the economic superiority of Germany consisted largely in her energy, while in the last war technical superiority was of superior import. In the earlier stages when the Central Empires were opposed to England, France, Belgium and Russia, the technical energies of the two groups of powers were approximately equal, but the entry of the U.S.A. into the war completely altered the balance. The post-war period has brought about serious changes in the conditions of production, especially as far as the production of coal has decreased in Europe and increased in practically all States in other continents. It is true that seasonal changes, especially of technology, existing conditions, have not yet taken place, but it is quite possible that these changes may take place in the future by means of better utilization of the energy in coal and the principal industrial countries are experimenting with this and in war.

Our method consists in not burning the coal directly as in a steam boiler, but in the valuable by products. But the main object is to transform coal into liquid or gaseous hydrocarbons, as these latter can be employed more advantageously in motors than coal or steam engines. If this problem is frequently discussed in the daily press, more useful if coal is also imported by some simple process, it will be possible to obtain even with the resources actually produced to day, an energy volume of a greatly increased amount, which would naturally increase (cf. Tables I and II above) a considerable influence on the standing of countries in a high state of economic development.

The productivity of chemical warfare is measured by the factor

Which measures the increase in the output of chemical warfare against the increase in the output of the economy. Table 15 shows the increase in output of the economy against the increase in the output of chemical warfare for the year 1939. The output of chemical warfare for 1939 was about one hundredth part of the output of the economy.

The productivity of the war industry which supplies that of coke is also measured with the development of the modern chemical industry. Having the combination of coal and coke various by-products are obtained. These by-products are a fertiliser for agricultural purposes and most of the base of many types pharmaceutical products, and many other uses. No facilities exist for the production for the only business to sell these and the coal output is utilized for the production of these by-products. Such large quantities of coal can be obtained without restriction of coal output by further reduction of coal but this would not be economical in all cases.

TABLE 15

	Coal output in tons of coke			Coke output in millions of tons		
	1939	1938	1937	1939	1938	1937
Germany	7.2	10.1	10.0	0.7	1.7	1.7
Japan	29	7.7	19.5	1.7	1.9	4.3
Italy	1.4	0.7	2.3	0.4	0.5	1.3
United States	19.5	14.4	14.0	7.5	6.0	5.8
U.S.S.R.	1.2	15.8	10.0	0.5	2.3	2.3
Total European	10.8	39.4	50.7	10.7	30.5	25.8

The use of coal without demand on the reduction of coal is measured in that 1939 when the best types were obtained from gas and thereby this fully developed during the last twenty or thirty years. It is evident that in 1939 the economy is about the same as in 1937. The development of the economy for the last 20 years, points deserve special attention as they have a great influence on the expansion of war war, the development of the explosive industry, and that of facilities between which there is, change to which, is not possible.

The explosive industry is naturally not only of great importance in the production of war but also in the production of coal mining and mining construction works. In many countries gunpowder was the only explosive, but it is not now, it is replaced by the discovery of a series of explosives of much greater efficiency such as picric acid, dynamite, gelatin, trinitrotoluene and others derived from coal and the products from coal were chemically, substances in 1939, but only used for the production of the French Army in 1939 after many technical

individuals and communities. I am convinced that a change from a unit basis, but most definitely a shift toward a tonnage basis, is necessary. A comparison of operations was made for the first time by Indians at Tumb in India, but it was only the work of Nohel in 1933 that indicated the potential utilization of the substance possible. In the same way, explosives derived from coal tar, pitch and and transvaalene have only been used for the last twelve years and now play an important part in war in connection with artillery, and in land operations.

The essential fact by which to judge modern times, and a failure was in particular is not the discovery of these new explosives, but the fact that today, as opposed to previous times, these materials can be produced in almost limitless quantities and that credit is due to the fact that the energy consumed in and can be employed in the manufacture of explosives. In previous centuries it was impossible to obtain the saltpetre necessary for the manufacture of gunpowder, excepting by the slow transformation of organic substances obtained in summer and other regions, whereas in the quantities of saltpetre obtainable were, for this reason, very small and the cost very high, about ten times their present value, having regard to the comparative value of money. As an example, Louis XIV in 1684 could only buy loads of about 400 tons of saltpetre, at the beginning of the nineteenth century the output of France was 40,000 tons. During the French Revolution, the whole nation worked at the production of saltpetre, so that the output increased rapidly, and Napoleon was able to buy his loads on an annual supply, for use in his wars of 5,000 to 10,000 tons of this material. It is important to remember that in the past, production was a slow affair and that raw material once used up, was not rapidly replaced. The first exportation of niter from India into England took place at the beginning of the nineteenth century. The nitrate deposits of Chile were only made use of in 1850 but the following table shows the increase in the export trade—

1850	1855	1860	1861	1875	Year
200	30,000	1,000,000	2,450,000	1,000,000	Year reported

It is interesting to record that during the world war the exportation of niter from Chile increased, although the Central Powers were not known—a proof of the enormous quantity of munitions used for today's warfare, or rather the nitre was estimated from them, from the basis for the production of modern high explosives.

The Central Powers were not prepared for the expenditure of munitions of war to the scale of modern warfare so that the lack of nitrate began to be felt even during the summer of 1914. The capture of Antwerp when there were large deposits of nitrate compounds, retarded this belief, and it subsequently these munitions created a process for converting them into nitric acid which by condensation. At the beginning they were able to obtain the necessary niter from coal during its combustion into niter. Later

they perfected the process of producing them from atmospheric nitrogen. They achieved the wholesale manufacture of cyanamide, from which it is equally possible to obtain ammonium salts and finally, they made vast quantities of ammonium salts by the Haber process of combining nitrogen and hydrogen. Both these elements are obtained with the help of coal, so that both ammonium salts and acids used derived from them represent the *chemical energy of coal*, by their means the lack of the Chile resource was vitally balanced. All industrial countries are now making good efforts to obtain synthesized nitrogen from atmospheric nitrogen a problem of the greatest importance from the point of view of agriculture in peace time. In consequence the stocks of synthesized nitrogen are now very much greater than were those of imported Chilean nitrate. Formerly, in the hands of chemical industry only began after the war, it is obvious that it will be possible to produce in the future, much greater stocks of ammonium salts than it was in the past. It is therefore possible to manufacture at need, from the wind of the harvest and the nitrogen of the air, by means of coal, explosives such as gun cotton in quantities continuously greater than in times past.

As has already been stated the output of explosives is extremely bound up with the highly important industry of the manufacture of chemical fertilizers. The use of the latter dates from 1860, due to the invention of Liebig and since 1880 the chemical industry has produced large quantities of these substances, e.g. potassium salts, ammonium salts and nitrites. The manufacture of cyanamide and ammonium salts has a special import even for agriculture the use of chemical manures having nearly doubled the yield of crops since 1880.

Average crop in kilograms per hectare in 1913.

	France	Germany	Austria	Russia	Spain
Wheat	12.9	12.2	1.9	1.4	1.2
Potatoes	5.0	14.5	11.5	5.0	10.0
Barley	—	—	10.0	24.0	25.2

Thus by the collaboration of science and industry it has been possible to feed a rapidly increasing population. But this does mean less the result that the organization of an industrial country in today means nearly three times as great than that of a country living in the far simpler conditions of the days. When it happens that the agriculture of a country is deprived of one of war, as was the case with Germany, during the world war of part of the most important chemical manures, the crop yield decreases, as can be seen by the table above, and the whole population suffers from shortage of food. The increased costs or loss in all countries during the late war as the raw materials of the chemical manure industry can only be obtained by international exchange. Two main important causes lie attached to this close liaison between science, industry and agriculture on the one hand and the results of war on the other.

## CHEMICAL WARFARE

By the term "chemical warfare" we mean the introduction of new methods of warfare (which have not been possible of recent years owing to the progress of mechanical chemistry) and more especially the use of poisonous substances. The term gas warfare is a narrower bit of a general one and is made of solid or liquid bodies.

It is difficult to define the term "chemical warfare" exactly as modern explosives give rise to poisonous gases, especially carbon monoxide, which during the war caused some loss of poisoning while on the other hand poisonous gases were not infrequently used in highly toxic shells. The greatest difference consists in the fact that in the past every effort was made to destroy both living and inanimate objects by mechanical means while nowadays poison gases seek to destroy living objects by physiological means. Flame-throwners and incendiary projectiles may also be classed as a branch of chemical warfare. The more important are the latter containing, as they do, white phosphorus and carbon sulphide. These projectiles are capable of producing so intense an incense markedly poisonous effect, on their victims. Lastly, the production of smoke clouds and fog so extensively used in both land and sea fighting is another branch of chemical warfare, but in what follows only poison gases will be dealt with.

Poison gases were used in large quantities for the first time during the last war. While a system of warfare had been contemplated previously but it was impossible to put the idea into practice as chemical technology was not sufficiently developed to allow of the use of sufficing gas in large quantities. Nearly all the substances used are organic compounds and are made from the raw materials used in the manufacture of dyes and plastics, chemical products. Most of them have only been discovered during the last thirty or forty years through alchemy and physics and were known 150 years ago. It is only recently, however, that these latter have been made on a large scale. The entirely new character of the hostilities in the world war resulted in the introduction of chemical warfare. With all poisons which were essentially means of movement, in that way the system soon became unadvised as to become and it very soon became apparent that the older methods were quite inefficient. One could however reach the enemy in his trenches and thus cause him disaster, as was done on the occasion of the use for the first time by the Germans on April 22, 1915 of a gas attack when the French had no anti gas equipment. This emergency was however, soon developed, for reason, which had produced the means of attack was put to work to invent the necessary anti gas measures.

## GENERAL ASPECTS OF THE MINERALOGY OF POISON GASES

The manufacture of these substances is not a difficult task for science to day. As we have already said a large number of them have been known

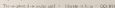
for many months before the commencement of the construction of dyes and pigments and products. It is a considerable volume of chemicals to be used in three quarters of the globe, particularly owing to the fact that chlorine, as a reagent, is very easy to use and is not so expensive as by comparison many other reagents. Consequently this manufacture is possible almost in all countries with a chemical industry, especially as it does not require any very specialized knowledge as to the use of complicated dyes and dyes add to this a few examples. Nitrobenzene, which is of great importance in the manufacture of explosives, can be made anywhere from benzene with three pounds gas a year allowed for a few months during the war and most of it is taken over without charge as it is so easily absorbed. But there are many other important dyes which can be easily made from chlorine, e.g. phthalene and its most powerful derivatives, which obtained during the war. Another important chlorine compound is carbon tetrachloride, such an industry in the refinancing of rubber. This is produced from chlorine yields nitrous gas (nitrogenous) species, nitrogenous gases (nitrogenous) which was extensively used during the last period of the war.



Chlorine can also be obtained easily from alcohol so that treated gas can be made in the water, quantities as enormous. By the chlorination of methyl bromide or of chloroform of methyl, is obtained trichloromethyl chloroform, used by the Germans under the name of peroxide in dyes. It is in what was known as "green gas" which was sold and by the French under the name of chlorine.



Another very important process gas chloroform, is obtained from the action of bleaching powder (chloride of lime) on water, and which is then used from plants, a and the derivative.



In hydrocarbons, various bromine derivatives were also used as for example bromoacetic acid, the mixture being easily obtained from acetic acid and bromine and also made of benzyl and naphthyl bromides derived from toluene and naphthalene, both of which are found in coal tar. It is difficult to obtain large quantities of bromine because it is more than chlorine, as well as being one of the most expensive and various chlorine products were also used.

During the last years of the war a most important part was played by carbon tetrachloride, consisting various. These were generally carried out by the French and were also used by the Germans in the manufacture of dyes. These were used were dyes, chloroform and hydrocarbons, both of which can be made by using as raw materials the cheap processes hydrochloric acid and sodium, the latter being the most important part in the manufacture of the sodium dyes.

The supplies of phosphorus and sodium have been enormously increased during the last several years in the production of glass by the removal of phosphorus from glasses, and, as early made from them, was only high hard, in spite of its markedly latent action.

We have seen that the war materials necessary for the prosecution of the submarine war as chemical warfare consist of various organic and inorganic elements, which are today at hand in very large quantities—e.g., ethyl and methyl alcohols, the latter of which was at first recently been shown to be produced from carbon monoxide—formic acid, which can also be produced from carbon monoxide—and also a whole series of volatile products such as benzene, toluene, nitrobenzene, carbon tetrachloride and phosgene. With regard to nitrogen, chlorine, bromine, iodine, arsenic and sulphur must also be considered as, with the exception of bromine, they are at hand in almost unlimited quantities. We can therefore repeat the statement that we have made above in connection with the manufacture of explosives, viz., that whereas in the past these raw materials could only be obtained in very small quantities, today they are so plentiful that it is possible to manufacture the substances for chemical warfare in quantities equal to those of explosives, so that in the war of the future the former will be incorporated in the latter from the very beginning of the war. Chemical warfare played an important rôle. In 1918 20 per cent. of the munitions used were gas shells, and in the course of some operations more of arsenic vapour than, e.g., in March 15, 1918, amounts of 500,000 chemical gas shells were used. In America, during November, 1918, the following amounts were produced—

Chlorine	1,000 tons
Phosgene	200 "
Mustard gas	750 "

In connection with the above figures we must remember that America only began to manufacture these substances at the beginning of 1918 so that the U. S. A. could easily make at least 100,000 tons a year, and there seems to be no valid reason why they should not make ten times as much. Exactly as in the last war arsenic chlorine was immediately destroyed by explosion, so in the next war equally large sums will be rendered unusable by chemical means except to those efficiently protected by suitable anti-gas apparatus.

#### CHARACTERISTICS OF GAS WARFARE

(1) Gas, as such, plays a very restricted rôle in chemical warfare. For the most part, the substances used are liquid or solid, and only made gases to act directly upon us and not merely decomposed by ourselves in all our experiments. Phosgene and, as exceedingly dangerous, poison, was not used extensively during the war as being lighter than air in the ratio of 35 to 28, it moves too rapidly with it. Chlorine Gas (molar weight 70) and phosgene (molecular weight 94) on the other hand, being a heavy layer above the ground, and we consequently suppress and neutralise chlorine

which are liquid at ordinary temperatures—and most of these such as, in this category—have a relatively low boiling point so that they volatilize fairly easily and thus act as poisons. As a general rule they are used as propellants becoming contained in capsules either as fog, or as minute droplets. Solid substances, such as diphosphenes and cyanide of diphenylarsine which hardly volatilize at all and only evaporate at a temperature above  $200^{\circ}$  C. can only be used in such a way that they are thrown off as a smoke cloud on the explosion of a propellant. This smoke is exceedingly stable, the ordinary smoke from a chimney, and is composed of very small particles the diameters of which vary from less than  $0.1 \mu$  to  $1 \mu$ . The successful absorption of such a smoke presented many difficulties. For ordinary films showed the passage of these particles owing to their small size and it was necessary to screen eye films with a specially fine mesh before it was possible to derive a successful means of countering these substances.

(2) It is further possible to subdivide poisons gases into those which are stable and consequently either not destroyed by the humidity of the atmosphere or only destroyed very slowly e.g. mustard gas, and others which are unstable and broken up by moisture e.g. phosgene. It is obvious however that it is impossible to separate these groups, absolutely though in actual practice each group is important as a different manner of attack compounds which evaporate slowly are used when it is desired to maintain any particular area unsafe for a relatively long period, while unstable compounds which are often completely broken up in a few hours and compounds which volatilize readily are used when it is proposed to follow them up with an attack.

(3) Lastly they may be divided according to their physiological action. These substances may act in one of two ways: a. irritants or as poisons. Irritants produce a more or less temporary condition of intense irritation e.g. of the eyes or nose which causes an attack, and thus give the individual not at all notice. The use of poisons is to kill, or at least to produce disease. A certain number of them e.g. mustard gas and gas used and have a slightly irritating effect, while others produce unsupportable irritation or complete nausea e.g. phosgene, diphosgene and then act as irritants, and in this manner irritants are also able to act as poisons if at sufficient concentration.

Among the latter group gases were classified as follows:—

- (1) Group irritants e.g. chlorine, phosgene, cyanides, chloroform, and phenylacetylene chloride.
- (2) Irritants e.g. bromine, cyanide, chloroform, benzene, and also certain of ethyl bromides of ethyl and cyanide of bromobenzene a very severe compound made in America but never used.
- (3) Poisons, e.g. mustard gas, and also the American product, Lewisite, a chlorovinylbismuthine, never used in the war. It is stated that its action is more violent than that of mustard gas. These latter are more potent than poisons producing



breath, but they are also dangerous as they produce pulmonary lesions some hours after inspiration. They also affect the eyes though there is no immediate irritation.

- (1) *Stenocardics* e.g., *Spherochlorine*, *diphosphorus cyanide* and *phosphorothiocarbamate*. These were called cyanides by the French, and were used by the Germans in their later war shells.

- (2) *Direct poisons* e.g., *prussic acid* and *mustard gas*, and carbon monoxide.

These substances are actually gases, but it is important to know which organs are particularly attacked. *C.P.* phosgene has produced an action on the skin, but is a violent respiratory poison, and can be detected by its smell. *Stenocardics*, on the other hand, get a man completely out of action by their effect on the nose and throat, but have no other effect on that involving vision normally in twenty-four hours or less. To judge of the effect of a poison we must take into consideration both its concentration and also the duration of exposure to its action. In England this effect is measured by the persistence of vision in the action during a period of time, and the following table shows the results obtained:—

Substance	Group	Intensity	Duration
Mustard	Acute	1 in 1,000,000	After 10 min.
Phosgene	Asphyxiating	1 in 50,000	
Chlorine	—	1 in 15,000	—

Minute differences in the composition of the mixture when made a great difference to an action e.g., the difference between *diphosphorobenzene* and the cyanide of *diphosphorobenzene*, the latter being two to three times as powerful as the former. It is difficult to obtain definite calculations as in the pastured results obtained from the use of asphyxiants, but in my case during the war they were used freely. It may be stated however, that the results of gas warfare have been greatly exaggerated, as naturally only a very minute part of the gas has a definitely destructive effect in action (cf. explosion). With a given quantity of poison gas it is obvious that immediate human beings could be developed given direct contact, but this is also the case with high explosives.

#### THE USE OF POISON GAS IN WAR

As is well known, in the early stages of gas warfare chlorine was largely used, being released from reservoirs and carried by the wind into the enemy trenches. It was only possible to make use of gas then i.e., only chlorine or phosgene. Further, as this method of using gas was entirely dependent on the direction and force of the wind, it was given up at a later stage of the war. With the further development of chemical warfare asphyxiating gas was used practically only in shells, for two reasons, firstly to prevent the passing of time in use being, and secondly, to extend the use of

most effective means of poisoning the enemy's war-making, were also a kind of gas chemical, disinfective and gas neutralizer (gas masks) were devised, various other measures were brought into use, e.g. disinfectants such as diphenyl chloroarsine and diphenylarsine oxazide which penetrated the masks, as I computed the enemy to measure them and thus expose himself to the action of the substances. Further asphyxiants can hardly be used, for with gas masks and there seems to be no reason why an acute attack over the population of whole towns should not be quickly destroyed by means of it, for the present gas masks have not been employed behind the lines, and it is impossible to state definitely what the effect of such an attack would be. It is also possible that in the future, asphyxiants will try to use a cloud of asphyxiating gas over large areas, by firing from jet nozzles of 400 to 500 ft.—a risky performance. At any apparently greater height it would be ineffective as the gas would be too freely diluted to exert any great effect.

Exact figures of gas casualties have been published by the French (1) *Annuaire de la guerre*, (2) *Etat de la Grande Guerre* during the great war (3) *Lancet* (1922) and *Revue*. When gas warfare was first introduced casualties were heavy, as there were no effective counter-measures, e.g. the Allies lost 15,000 men to gas casualties in April 1st 1915, including 1,000 dead. After the introduction of effective counter-measures, death was much less numerous and averaged 5 per cent. of casualties as 1918-1919 per cent. in 19 months from other agents. He supported the above estimate given in the following figures: Germany, from September 1st to 30 1918—50,000 gas casualties with 1,000 deaths—2 per cent. gas deaths. France from January 1st to 15 1919—10,000 gas casualties with 400 deaths—4 per cent. gas deaths. French Empire in 1918—300,000 gas casualties of which 10,000 or 3.3 per cent. were due to mustard. There were 4,000 deaths or 1.33 per cent. In the same period deaths resulting from wounds amounted to 1.66 per cent. of casualties.

By summing the many given the following figures as representing the deaths during the whole war: 5.1 per cent. of American gas cases were killed and 10 per cent. of British gas cases as opposed to 15 per cent. of wounded soldiers. From this it is evident that gas warfare is not so destructive as it is often at other stages of warfare, as a casualty usually due to gas has a chance of recovery, rarely the same better than one wounded by projectiles or fire, not.

It might be stated that the after-effects of gas are likely to be much worse than other wounds. Various statistics have in fact been published, from time to time of the various results of wounds (cf. 'History of the Great War Medical Service' and *Reichswehr für die gesamte kriegsärztliche Medizin* vol. viii. Berlin, 1921). The most naturally antagonistic group pulmonary lesions, due to such agents as phosgene and mustard and in this connection O. Hesseman writes (*Reichswehr für die gesamte kriegsärztliche Medizin*, Berlin vol. viii 1921). 'All observers have placed an

about one gram throughly. I wanted to make a small amount of gas, with a minimum quantity of liquid. Various directions pointed that the steel bottle pressure be increased, especially in the respiratory system, perhaps the individual be struck by infectious disease. It is thus quite possible that the pandemic of influenza in 1918 was considerably helped by the large number of soldiers suffering from the pulmonary after effects of mustard. On the other hand, statistics seem to point that gassing forces had slight after-effects, no more than 5 per cent of war prisoners in Great Britain are disabled as suffering from gas.

It was only in the very early days of gas warfare that it was possible to obtain any very marked gains by this means. As anti-gas measures were rapidly brought into action and research into their operation became a most important part of the preparation for war of every country today. The lungs with, chemical action were used, e.g. hypochlorite of soda, and subsequently used chemical were used to destroy the gases. Thus acted by absorption of the gas the more complicated the chemical formulae of the gas the more easily was it absorbed owing to its solubility also. Present-day gas makes use so efficient that a man wearing one of them can easily spend several days in an atmosphere heavily laden with gas with the exception of routine movements. It is however much more difficult to exclude smoke clouds owing to the extremely small particles forming them, but this difficulty has been overcome by the use of masks containing special cellular substances or felt. To remove the blisters produced by mustard only special protective clothing is of any use and this causes considerable inconvenience.

#### THE FUTURE OF CHEMICAL WARFARE

There can be no doubt that in the next war gas will be used in quantities enormously greater than ever before and it is quite possible that in spite of the Protocol of June 17, 1925 signed by the members of the League of Nations at Geneva, a further barrier to the danger of future biological warfare may be sprung on a startled world. Putting this phase aside, however it is plain that with ever-increasing quantities of raw materials available as pointed out above the amounts of destructive substances available for offensive action will be enormously increased. Some nations have installed special experimental stations to deal with this subject, and any attempt to prohibit or limit this method of warfare is foreshadowed to failure. The supporters of gas warfare point out that it is more humane than any other method such as regards the number of dead and of the permanently maimed and claim that the ideal result is obtained by putting the enemy temporarily out of action and then granting an armistice. In this way it gives to a technically well developed country the advantage in preparing for war as this way is better of point, to modify the chemical industry in the preparation of the necessary raw by products for use in the manufacture of poison gases.

The development of weapons has introduced another factor into warfare, and makes the prospect of a future war particularly gloomy for the non-combatant civil population, as it will be possible to send entire towns with explosives from dropped bombs. In this connection it seems not impossible that the opening move in a war might be the bombing of the enemy capital and country by huge flights of aeroplanes daily for some weeks. Half-hour bombs and their high explosives, or secondary bombs on a large town, would cause at least as much damage, but against the one must allow that whereas digouts and bunkers do, afford a certain measure of protection against the effects of explosives, defenceless towns are able to reach any position, whether in the open or under cover. Indeed they are more dangerous in such places as dingy cities, by causing its more ponderous permanent. Effective protection measures might be devised along two lines of attack. (1) Individual protection, such as is afforded by the gassing helmet by itself and proved gas-proof and protective clothing; (2) collective protection for the civilian population. This would be possible in vital underground personnel chambers in which civilians would have to be kept safe and secure as long as the danger persisted.

Some form of protection would also be required for individuals who are, on the one hand, of the above categories, such as government officials, including members of the crown, dockyard officials and workmen, &c., who from the nature of their work cannot be moved away from it.

In conclusion, I wish to express my indebtedness to Professor Strathmore of Elmhurst for his permission to make use of his published papers on this subject.

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## ARTIFICIAL LIGHTING IN H. M. SHIPS.

By STANLEY CURTIS, F. R. S. L. S. M. S. E. E.

As a result of research work carried out during recent years, especially in connection with schools, factories and workshops, considerable progress has been made in the science and art of lighting. It is now possible to define or describe more accurately what is meant by 'good lighting', which is no longer, not only, to prevent injury to the eyes but also to ensure that work is carried out efficiently and safely.

In the modern case of war, in many compartments in which daylight is insufficient or not available at all, the importance of an efficient artificial system of lighting is evident. Inadequate lighting of living and working spaces is bad, not only because of the serious harmful effects on the eyes and diminished output of work but also because of the psychological effect on the individual. The depressing effects of the dull day work on daylight have been experienced by many people in poorly-lighted compartments who would experience comfort from the gloomy surroundings and to this is added increased irritability owing to the discomfort caused by reading, working or working or attempting to carry out such duties with insufficient light.

The psychological effects of bad lighting must be borne in mind especially when considering the lighting requirements in our ships, where all conditions which tend to stimulate and brighten the mental outlook must be developed to the utmost extent possible. On the other hand it must be remembered that too much light is also bad. In the tropics the intense light is believed by many to cause nervous disorders and overstimulation of the mind and body with, as a rule, the adverse effects of glare are experienced in compartments in which illumination is excessive. Of all the requirements of good lighting, therefore, the amount of illumination which should be provided is one of the most important and recent work has shown that the standards of illumination hitherto considered desirable have in the main been too low.

The importance of a suitable environment in regards light in relation to the general health and well-being of the sailor will be appreciated by all medical officers, but it must be remembered that the provision of good lighting in a modern case of war with numerous compartments in which the nature of the work carried out varies greatly, is not a simple problem. For many years after the introduction of electricity, which made good lighting in our ships possible, lighting arrangements were far from satisfactory. The standard of illumination was too low and the lighting wires were not used to the best advantage. Considerable improvements have been made during recent years, and every effort is now made to secure good lighting in all living and working spaces in H. M. ships.

light, including the illuminance of light falling on a surface, may be measured by means of a photometer, one which is well equipped, will be found accurate. The most desirable kind of this instrument is the spot photometer of high optical density, common now, the light produced by one standard candle being 2 at the rate of 120 grains per foot<sup>2</sup>. The new law in use is the international candle, the magnitude of which was defined in 1909 by agreement between the three national candle-making laboratories of France, Great Britain and the United States. This unit is maintained as the standard by means of a certain group of electric standard lamp units kept at the National Physical Laboratory. When a lamp is described as having a candle power of 42 (25 W. P.) this means that its luminous intensity is equal to the international candle.

The term illumination is used to describe the amount of light falling on a given surface. They relate inversely as the square of the distance of the source of light to the source of light. The unit of illumination is the foot candle. One foot candle is the illumination produced by a light source of one candle of candle as a point on a surface one foot distant. With a lighting unit equivalent of 50 candle power at a distance of one foot from a surface, the other surface will be of foot candles. If the distance of this light source is increased to 10 ft., then as the distance varies inversely as the square of the distance the illumination of the surface will be  $\frac{50}{100} = 0.5$  foot-candle.

The amount of illumination in any part of a room, or at any point on a working plane, can also be measured directly by means of photometers. The essential feature of these instruments (also called lightmeters) is the presence of means for the convenient visual comparison of the brightness of two different sources of light, one of which is known. A simple form of lightmeter consists of a small sliding rectangular box containing a lamp of known candle power which illuminates a translucent glass screen. The screen on which is marked throughout its length a graduated scale indicating foot candles forms the upper side or lid of the box. By means of a sliding radial flap, on which is fixed a small circular screen with a given spot the light from the contained lamp can be compared with the light from any source which it is desired to measure.

To measure the illumination on a working plane or at any point in a compartment the instrument is placed in the required position. After focusing on the lamp which is furnished with a lamp cell compensator and eye are taken by sliding the metal cover of the lightmeter along the screen until the given spot in the translucent scale of the cover just is square. The given spot is more transparent to light than the parallel screen which measures it, and when illuminated from within the box and from without appears brighter or darker according to which side of the screen is the more strongly illuminated. By moving the sliding cover, as already described the position is readily found at which the illumination on both sides is the same and the amount of illumination in foot candles is indicated on the graduated scale opposite to this point.

Illumination must be distinguished from surface brightness. Illumination is measured by the amount of light received on the surface of an object. Surface brightness is measured by the amount of light returned or reflected from the surface. Thus, whilst illumination is independent of the nature of the object or surface receiving light, the facility with which an illuminated object can be seen depends not only on the amount of the illumination but also on the ability of the object to reflect light. For instance, a ship painted white can be seen much more clearly at night by means of the moonlight than one which is painted black. The reflecting properties of the surroundings, is a consideration, especially of the walls and ceilings that always in houses is used when considering lighting arrangements. The amount of light returned from white surfaces is about 80 per cent. from black surfaces only about 2 or 3 per cent. In the case of a highly polished smooth surface such as a mirror light reflection is regular. In the case of roughed or matt surfaces reflection is diffuse, the light being returned or reflected in all directions. Between these two extremes the nature and amount of reflection varies greatly, but in a comparison the greater part of the reflection from walls, ceilings and windowed objects, is diffuse.

In the consideration of lighting systems the question of glare must always be borne in mind. By glare is meant the discomfort or annoyance or inconvenience with vision which is produced by light shining into the eye. It is caused by: (a) excessive brightness of sources of illumination; (b) excessive reflection from surrounding objects; (c) excessive contrast.

A worker often looking directly at a bright source of light is temporarily dazzled and his vision for a time is impaired. Glare also results indirectly when there are bright sources of light towards the edge of the field of vision. It is most important in all lighting schemes to eliminate glare to the extent extent possible not only because of the temporary dazzling effect which it produces but because it may actually damage the eyesight and impair health.

Electric lamps are sometimes described not as being of candle power but according to their wattage input and output. The unit of measurement used is the watt, which is the current measurement in an electrical circuit by one ampere at a pressure of one volt. Voltage or ampere = watts. To produce the same candle power using fluorescent lamps requires more electricity than those with incandescent. Carbon filament lamps are usually constructed to take  $\frac{1}{2}$  to 4 watts per candle, tungsten filament vacuum lamps 1 to 1 $\frac{1}{2}$  watts, and gas-filled lamps 1 to 1 watt per candle. The candle power of a tungsten filament vacuum lamp of 40 watts consuming

115 watts per candle would be  $\frac{40}{1.15} = 35$ .

The requirements of good lighting may be summed up as follows:-

- (1) The lighting must be adequate. (2) Glare must be eliminated.
- (3) It must be constant and uniform. (4) Shading on the work is not to

provided. The amount of light required in a compartment will depend on: (1) the size of the compartment; (2) the nature and extent of the surroundings; (3) the nature of the work carried out in the compartment. It is obvious therefore that the amount required in the same different compartments on board ship will vary considerably. In many compartments such as the main deck, saloon, officers' cabins and workshops, sufficient general illumination must be provided, and in addition adequate local illumination in certain places, for reading, writing and other work. In other compartments, such as bunkrooms, less light is required and general lighting is sufficient. It is obvious that the illumination required for reading, writing and many other kinds of work in which detailed perception is necessary,

ILLUMINATION VALUES RECOMMENDED FOR H. M. SHIPS

Space	Position	Illumination in foot-candles	
		Average	Minimum
Ward rooms, sick quarters, gun room, W. O. & gunner's cabin	(Decks, inside tables) do (Elsewhere)	4 to 8 2 to 6	1.0
Recreational spaces and mess decks	(Decks, tables) (Elsewhere)	4 to 8 —	1.0
Offices	(Decks) (Elsewhere)	4 to 8 2 to 4	1.0
School rooms, reading rooms and recreation rooms	(Reading and writing tables) (Elsewhere)	4 to 8 2 to 6	1.0
Galeries and passages	—	—	1
Store rooms	(Decks) (Elsewhere)	4 to 6 —	1.0 1
Luggage rooms, lockers and the parts that are not lockers and messes	—	2 to 4	1.0
Yard spaces, auxiliary machinery spaces and boiler rooms	—	2 to 5	1
Decks and all working spaces, work and transfer spaces	—	1.0	1
Workshops	(Benches do.) (Elsewhere)	4 to 10 7 to 10	1.0



will be greater than that required for general lighting in a room or apartment. The illumination on any working plane should not be less than two foot candles, and in most cases, three to six will be required. The illuminance values recommended for the various compartments in B.M. shops by the Admiralty *Efficient Lighting Committee* are given in the table.

This table specifies the illuminations required in particular places in a workshop, such as desks, benches, tables, etc., and also in the remainder of the space. The figures quoted under minimum illuminations represent the lowest illuminations which should be present in any part of the compartment which is ordinarily accessible. Light-colored walls and ceilings are preferable to dark ones, not only because greater illuminations can be obtained with the same number of light, but also because light-colored surroundings are more cheerful. Cream, light buff or stone are the most suitable colors for walls of workshops.

An Admiralty staff recent research would appear to indicate that the illuminance standards in British workshops desirable are, on the two. In this connection it is well to remember that the average daylight available on well lighted offices is about 30 to 42 foot candles. Illuminances must also be made for persons with impaired visual acuity who require a higher degree of illumination than those with good vision. British Customs have the best the work the greater the illuminations required. The Industrial Design Research Board of the National Research Council have shown that maximum work on the printing trade is not attainable under an illuminance of less than 50 foot candles. In a report by Day and Appleby, the United States Public Health Service on the lighting of post offices it is recommended that for clerical work in general the illuminations should be 10 foot candles.

Other must be specified against by: (1) Avoiding excessive illuminations; (2) choosing suitable positions for lights; (3) adequate use of shades. Blinds, curtains and deep shades can be avoided by maintaining a suitable distance between general or flood lighting. The general illuminations in a workshop should not fall below 20 per cent of the foot candle illuminations. The illuminations on a working plane should be as uniform as possible, and the lighting should be so arranged that no shadows fall on the work. Consistency and uniformity which are such desirable attributes of good lighting may almost be considered characteristics of electric lighting. Flickering is an annoyance and with low the illuminations in voltage on flood lamps are not infrequently frequent to cause any disturbing variations in the lighting.

General lighting may be direct or indirect. Local lighting is usually direct but combined local and general lighting may be used.

In direct lighting the compartment or working plane is illuminated directly by the lamps, the light from which is reflected downwards by means of opaque shades. In indirect lighting the greater part of the light is thrown on the ceiling and upper part of the walls, by means of opaque

reflector placed below the lamp, and thence diffused to the lower parts of the compartment. The important distinction between down and up direct lighting is that in the former the light emanates from points not in the lower free surface.

Indirect lighting is now used in many places on ships. It is thence named by an abrupt complete absence of shadows and by marked uniformity, but it is not so economical as direct lighting. To promote uniform illumination by the indirect method for reading, writing, and other close work, it is necessary to use a considerably greater total candle power than is required by the direct method. When a luminaire or luminaires lighting is the medium employed. In this method, instead of fitting an opaque reflector to direct all the light upwards, a translucent material is employed which directs part of the light to pass directly downwards, the remainder being reflected upwards. This direct method of lighting is the most suitable for general use in general use. Indirect lighting can also be used with advantage in positions where reflectors would, cannot, either be obtained.

Fluorescent is the best source of artificial light available. The electric lamp common on ships, produces no undesirable products to pollute the air and compared with candles and oil the best produced by it is small. Fluorescent lighting, on board ships is of numerous varieties or combinations, sometimes no combination. The light is produced by the passage of an electric current through a fine coating of carbon filament enclosed in a vacuum or partially filled glass bulb the resistance to the passage of the current through the filament creating incandescence.

Carbon filament electric lamps, which were formerly much used in H. M. ships have been replaced largely by lamps with acetate filaments. The latter although more easily damaged than the former when these filaments break and for the same candle-power consume less electricity. Tungsten filament lamps with gas filled or vacuum bulbs are very suitable for use on board ships the gas filled type being used for large units and the vacuum type for smaller units. Carbon filament lamps should only be employed in those positions where, owing to excessive vibration such as is caused by gun fire, tungsten filaments would be broken.

The choice of lamp which is used for aerodromes is not suitable for general lighting purposes. Owing to the great intensity of the light, glare is excessive and serious eye trouble may result in persons exposed to it. The illumination of the air light is produced by the passage of an electric current through two carbon rods the ends of which are brought nearly into contact. The carbon points become incandescent owing to the heat caused by the resistance opposed to the passage of the current across the gap which separates them.

For general lighting the largest units convenient with space, material, weight and height should preferably be used. In the majority of the living and working spaces on board ships lamps of 25 to 40 candle-power will be

most satisfactory small lamps where a few illuminant feet are required without direct illumination and uniformity. In our report of the American Illuminating Engineering Association, published in 1922, it is stated that small high-wattage fluorescent lamp is the more suitable for all round general work, but will give a rough idea, between two or good distribution and the number of lighting points required. In some instances, however, 40-watt lamps may with advantage be adopted and where the height between decks is abnormal 100-watt lamps may be more suitable.

It is also recommended in the above report that wire guards which could readily save much used for protecting lamps should be depressed with. These guards not only obstruct the light but also increase the weight of the fittings and interfere with the lowering of the hulls. Oil and kerosene bulbs are not recommended. Although these lamps come less expensive than other glass lamps they still have too high a surface brightness and should only be used in those positions where it is difficult or impossible to shade the light.

Great care must be exercised when fixing the wires for lighting points in a compartment. For general lighting purposes the lamps required in a compartment should preferably be placed overhead. In some cases and other spaces or headship where deck beams, ventilation trunk, and other fittings cause obstruction to light over it is not always possible to secure sufficient general illumination by overhead lamps alone and in many cases bulkhead lamps are required. These bulkhead lights, mounted as they are, on the side walls of compartments as comparatively low level are liable to cause considerable discomfort from glare and for this reason they should be used as seldom as possible. Owing to this position bulkhead lamps must also be protected by an outer casing of thick glass to guard against breakage. Plain glass should not be used for this purpose unless the last p. fluorescent are directly enclosed in opal or frosted bulbs.

The important point to remember in connection with bulkhead lights is that the light rays themselves should always be sufficiently obscured to prevent glare. Adequate screening of these lights can be secured either by using lamps the bulbs of which are made of opal or frosted glass or by employing clear glass bulbs enclosed in cages of frosted glass substance, capable of preventing the filament from being seen too clearly. It will be readily understood that the use of reflecting glassware which for lamp bulbs or protective casings screens, towards the face of light and increases the employment of more lamps than would otherwise be required. The use of opal screens has been recommended for the prevention of glare from bulkhead lamps. In this method the filament of each lamp are surrounded completely above the horizontal plane of the lamp by a series of overlapping opal screens, connected when the bulb is placed in heat.

The position of the various lighting units in a compartment is so vital as to make color is also important. Correct spacing of light sources is necessary,



To *produce artificial daylight*, the spectrum of the artificial light source must be made proportionally strong, especially in the violet light. In the spectrum of a beam of orange daylight the intensity of the blue and violet rays is considerably greater than that of the red and orange rays. In the spectrum of electric light on the other hand, the red and orange rays predominate. To produce the effect of daylight with an electric lamp it is necessary to reflect the red and orange rays and they bear the same proportion to the blue and violet rays as they do in daylight. This can be done either by using reflectors or shades coloured in such a way that the colours towards the red end of the spectrum are largely absorbed, whilst those of the violet end are reflected, or by employing lamps the bulbs of which are lined so as to absorb largely the red rays. The capacity of different pigments for absorption and reflection of different coloured rays can be estimated in these ways so that the resulting light resembles daylight very closely.

The essential components of the ordinary type of daylight lamp are the specially coloured shade reflector placed above the source of light and a metal reflector placed underneath. The latter is necessary in order that the whole of the light may be cast on the shade and thence distributed.

The daylight lamps in which bulbs with specially mixed glass are used are very suitable for general use. Such lamps are a complete unit and in small or special shades no reflector being necessary. The daylight effect is obtained when required by simply replacing the clear glass bulbs used for ordinary lighting purposes by the specially treated daylight bulbs. For desk lighting or other *close-work* lamps should be satisfactory, and for general lighting in those circumstances in which lamps should be reflected, provided the shade are suitably spaced.

## ABNORMAL HIBERNIA IN THE ROYAL NAVY

By SIR JOHN EDWARDS, B. S. C. VETERINARY OFFICER, H. M. S. "VIRIDIAN"

### Part I

ABNORMAL HIBERNIA is of especial interest in its local effects on the Navy. Services. In 1908 Mr. MacLellan Laidlaw wrote:—

"In the Royal Navy no man will be recruited if he has a history of any form even if it has been operated upon. As a rule, though this appears to be some obstruction the development of a hibernia, if denied by the surgeon, necessitates retention of the hibernia even although the officer is willing to undergo a radical operation with a view to cure."<sup>1</sup>

This statement, although not strictly accurate, gives us a fair indication

<sup>1</sup> Quoted by permission from the *Proceedings of the Royal Society of Medicine*, 1907, vol. 100.

<sup>2</sup> *Quoted* in J. Laidlaw, *Obstruction and Treatment*. (London, 1909) p. 128.

It is true, it is true, in the human body, the "vital force" has been greatly weakened by the conditions that have produced it. Perhaps no similar quarter of a century our present views on the etiology and treatment of hernia will be looked upon in the same light as that in which we regard Mr. McAdam Parker's statement to-day, and the prevention of some forms of hernia will be an accomplished fact. If our results are to be improved, the surgeons must constantly revise his methods, adapt them to various conditions and also thoroughly understand the nature of the conditions which he attempts to cure.

I propose to consider the subject under a different point of view than our post-operative hernia and the pathological lesions underlying their production, the method dealing with hernia through the weak points of an abdominal wound, excluding internal hernia. Both these subdivisions will be considered mainly from the etiological and preventive aspect, although the details of surgical technique cannot be kept entirely in the background, especially with regard to the incision. Before discussing either, I would draw your attention to certain salient facts which, though common to both branches have a notable bearing on the conditions met with in each position.

(1) We have constant material to work upon. Our patients are, as should be with looked upon.

(2) Neither estimate of age nor season enter the question. Hernia is to the age conditions will be made subsequently.

(3) Our patients are not only in the almost best. They must be confined to the service in any part of the world or secluded. In our efforts to prevent spreading, we are often tempted to operate when success is impossible. To what extent a medical officer is justified in allowing operations depends almost entirely on his practical experience.

(4) Finally, I want to state that the hernia does not mean during the German era, which is quite different from "hernia" in the sense defined by Thiersch, or a cure for life.

#### THE CONCEPT OF HERNIA

Fortunately the important class is becoming less common in our country than formerly. I look forward to the time when it will come to pass. There are three principal lesions concerned in the formation, in the in form of post-operative hernia which may be summarized thus:—

(1) A general improvement in surgical technique.

(2) An appreciation by surgeons of the pathological lesions which underlie the hernia.

(3) A realization that the abdominal wall is not merely a complicated mechanical structure, but that each muscle or group of muscles has various functions to perform. The various inguinal and other abdominal rings all act as prime factors in the support, support or fixation of the body to be carried or moved into any desired position. By applying the results

It is verified that a disturbance in function of the function of the organism will be accompanied by the physiological changes has been previously observed. If we recognize the symptoms of physical postoperative form in this connection, then we can more readily appreciate its effects in these cases of post-operative form. In an operation less of time to be more important than a chemical defect.

Let us turn for a moment to surgical pathology, according to some of the events which lead to a post-operative form. There we find a who have not independently seen an otherwise excellent medical case, and put your own on the facts of this day after the operation. Work of us at some time in another have found the medical signs, which led to the occurrence of the condition. I suggest, that in the past might be, but too frequently have made the diagnosis for the operation, because of the following. Even today it is usually made, that an operation may sometimes be any other a large number of cases with on the edge of the wound are damaged and killed, hemorrhage is found to occur, and some months later are seen before the postoperative is reached. From the moment that you are discovered in the abdominal cavity the series of events leading up to a post-operative form begins, especially if at the conclusion of the operation the abdominal wall is closed up layers. From the practical point of view the muscle planes, the weak local resistance of which is necessary have been exposed to violence of some separation of various degrees of violence. An acute hypervolemia follows, with weakness of the tissue fluids. Blood cells infiltrate this area where the slightest motion of contracted blood and dead or living tissue cells are slowly present. The muscle fibers the muscle having been exposed to these processes death, become infarcted and a suppurative process accompanied by infection in this exposure. Nature, as John Wilson and I suggested by the surgical field has usually. For however the way out and in truth develops into a chronic state, from which some of undisturbed repair come away at intervals. In this meantime the epithelial cells have been trying their utmost strength to replace the muscle fibers which have been lost. After such radical changes in the structure of the abdominal wall we can easily understand how greatly the delicate physical function has been impaired. Usually impairment of function is noted in all cases in which destruction of the muscle element has taken place and a most marked when the process has been directed along to the addition of the physiological nature of the system.

Another important group of cases includes atrophy of muscle from paralysis. An extended Shiller's disease is responsible for most of these. If the lower half of the muscle has suffered the manner may be operative measures is hardly worth attempting.

Especially was the first in my showing the necessity for showing the layers of the abdominal wall after the treatment of suppurative conditions within the abdominal cavity, which is, Lager Beckman, in his Hysteria





The question is, in whether abdominal hernia is congenital or acquired or one upon which opinion is divided. Formerly, the general opinion was that they were acquired. At present most surgeons make them congenital, but we cannot deny that hernial protrusion occurs at other regions of the body, such as behind the pharynx or the diaphragm or the stomach, or these situations they are obviously acquired. I often think that although great attention is paid to the site and nature of the hernia, insufficient importance is attached to the field of the patient. Before any operative measures are considered a search should be made for factors which may have increased the intra-abdominal pressure, such as a chronic cough, any form of dyspepsia, any change in the innervation of the abdominal wall and any excessive intake of the abdominal contents. I cannot the original rings but merely an abdominal distention, but quite as much so part of the operative work of the abdomen which possesses a definite physiological function. They serve as a valve which enables intra-abdominal pressure to vary within limits. When the limit is over reached a hernia develops. Such variations of intra-abdominal pressure are particularly observed in cases of sliding hernia.

I have learned to classify abdominal hernias into two main groups. In the first is placed the young, strong healthy man who has recently acquired the hernia. Apparently he is perfectly fit and yet between the ages of 15 and 20 an original hernia develops, slowly or suddenly, with or without a history of strain. These are usually found at operation to be congenital with a very definite ring and very often a second one. When there is no resistance usually takes place within a few months of the original operation, and the second one is generally the same. William White in the same hernia case is military surgeon in the United States Army during the early period of training, but does not report any explanation.

The second group includes the older man who has reached a stage in his hernia case when he may actually have reversed this formerly and he is, putting on weight. His abdominal muscles are becoming infiltrated with fat, the internal oblique begins to sag and thus loses its ability to hold the gut in controlling the internal ring. More important than this is the fact that the abdominal contents are loaded with fat. The omentum and the appendages proliferate, increased in bulk. In addition, the bed on which the protrusion rests is becoming softer and flatter. On the other hand the peritoneal cavity does not increase correspondingly to accommodate the bulky contents. Consequently, as something has to give way the abdominal wall bulges at its only valve—the internal ring. Such men, in my opinion, truly acquired hernia. On opening up the original canal we find an orifice of incomprehensible but sometimes termed a ligament, in the middle of which is a pocket of peritoneum with a hard base. In a hernial hernia we often see a similar condition, but the neck of the sac is contracted. This heavy variety of hernia is very apt to cause strangulation and it is possible the patient in due season to become thin—obese which need to be given in the

days before subject commenced work, and, in general, the frequency of a later shift than the usual day-evening shift or from 1930 to the first night shift. The above collection is the result of 108 consecutive 24-hour measurements during the 1930 season.

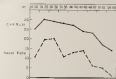
Reference is made to some of the computations of hours and the following table is reproduced from the latter paper. The second table for hours worked last week is taken from the results of the Royal Naval Hospital, 1930.

TABLE 1. HOURS OF WORKING PER DAY

Days per 1000

Frequency	No. of Days a Week	Royal Naval Hospital Records
1000	24	17
950	20	19
900	25	20
850	24	11
800	1	24
750	5	18
700	0	6
650	11	2
600	12	3
550	18	—
500	1	—

This comparison of the upper intensity of hours is represented as an example in the graph, which is prepared by Unit Policy Officer 4 and is said to show that the current one is very similar.



It is generally accepted that oblique septated horns in the male occur during an frequency that of any other horn. Various explanations of this have been put forward and I suggest another, which is theoretical and fairly capable of proof. A study of the age incidence shows that the





with various parts of the world, and through the latter it passes as the numerous light or exposed lands. The surface of water is much about the formation of the light of the numerous lands, but the light is observed a lower degree of light for the same reason for the same. The light is the same as the light of the same light, and the light of the same light is the same as the light of the same light.

The issue of which insurance takes place was examined by constructing regressions and a graph indicating the support of  $\hat{\alpha}$ . Figure 1 states that insurance takes place within the last few weeks before a family member is confined to hospital care or within the last few weeks before a child is born. The graph shows that 70 per cent of cases occur within the first 120 years and after this declines to some less than 10 per cent.

In thirty-five instances the conversions were by 1. In thirty-two the second happened in rule and organization continued the original practice. Two cases occurred in conversion both from one to the other.

It is not intended to discuss any details of a particular program; it is a survey of programs that is conceptualized this way.

- (3) Failure to remove the wax or over-heating. (4) Too high or too low increased water differential pressure from air source. (5) Slight leakage from system with insufficient quantity. (6) Broad surface is

In conclusion, I desire to acknowledge with gratitude the thoughtful and practical assistance received from my former class, the *Journal of the American Medical Association*, without which this paper could not have been written.

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Calvin R. M. Cross (1946) used the double-blind method of randomization by having two long tubes connected to the burner of a Bunsen burner. A sample of methane gas is placed in one of the tubes and the other tube is connected to a gas cylinder. The gas cylinder is then used to fill the tube. The gas in the tube is then ignited by a spark. The gas in the tube is then ignited by a spark. The gas in the tube is then ignited by a spark.

Professor Burt has emphasized the rejection of all "isms" and the refusal to let a man or woman be defined by his or her political or religious opinions, or even by his or her sexual behavior. He has said that the only way to achieve a truly democratic society is to reject all "isms" and to accept the principle of individualism.

[illegible]



In the Bureau we have better opportunities of checking the after-results of operations for horses than in our practice, for many of our most valuable cases are kept in it during the year 1900 50 cases in which operations had taken place were kept.

The period after operations at which recoveries took place was as follows: Ten cases per month from year 1 within two years; 8 within three years; 2 within five years; 2 within eight years; and 1 within eleven years. In six cases the period elapsing after operations was ten years. These figures approximate fairly closely to those given by Ferguson, Commander Singapore. It is proportion of recoveries does not point to any general failure on the part of the operations to be satisfactory and of these 50 cases, 37 were referred to a specialist with consent. Operations in 1900, excepted by all centres in the whole of America, a horse and only seven animals in relation to operations carried during the year.

The wearing of a brace is here a very great aid in the work. While operations in the natural case of horses are often undertaken by young surgeons, the majority of the operations should not be commenced and in any operation for horses should be regarded as a major operation.

A point of some importance was mentioned by Ferguson, Commander Singapore in the period of absence from duty after operations. The position in the Army is to render the man as long as a period of from three to four months and then to re-examine; a period of one month is not, although it is impossible to make certain that the man is restored from all disease after exploring his own failure. In some cases, however, operations done in a danger that he will be forced upon in future duty, which is very apt to set up a recurrence.

Surgeon, Commander Singapore (in reply) stated that Singapore's independence was referred to by Colonel Cowell was not altogether new in the literature. He remarked that they were a personal defect and that operations was more liable to take place in such as it.

He agreed with Colonel Wynn's remarks. In the Royal Navy no officers were returned to full duty until four months had elapsed from the time of the operation. He did not remember operations done on or provided in the Navy, in the period in the statistics quoted by Colonel Wynn.

## FURTHER REMARKS ON EXAMINATIONS IN MEDICAL CRIME AND ORAL TESTS

BY DONALD MITCHELL, M.D., M.B.

A NUMBER of papers in the Journal in January PUT forth well-known points of interest to questions answered by students on paper. In these notes emphasis will be made of some aspects of the diagnosis of criminal and test.

### CONFESSIONS OF A LIEBOWITZ

Several questions in the Law Courts point to the necessity of a thorough examination with the patients which may be met with in filling up a confession with a criminal case of history. The case of the a student may quite possibly have a certificate of history. Indeed to have an oral examination, subsequently filled in, and be asked to give his opinion on it. In answering whether a confession has been filled up properly or not, some explanation.

The following questions will help to produce the desired result. The

subject might be questioned on. (I cannot imagine the worst case group the same people and considering their resources, they may) could afford to be taken into jail. These questions might be much less important to a nation who has not fully accepted commerce and who are the least well equipped. The question is the more important the more limited the ability of those already imprisoned to control the situation. If the student or doctor cannot benefit in these points, but in subsequent to the conclusion, he will not, but cannot afford to deal with any question which may seem characteristic of the world, and is not) described by saying the Government completely and almost a state man. The answer should be No. (2) How I stoppage and all I would say, and I feel, concerned by the situation of the world. (3) How I give the present single opportunity to improve, but at these statements and statements, including these questions, as well as well as there. (4) How I make a thorough personal examination? How should be done, at the time of saying the statement. (5) How I would be good fairly and a very reasonable child, and so, to the best of my knowledge? Had such a child, being present on a nation in which one should be free. It is well to be sure, and that one may be prepared to answer with. (6) Is it plain to me, that, that the world would partly be in declaring, the present manner? (7) How I would the patient on having a system, or not I think, as to what I observe myself? (8) How I make more statements to prevent the first statement by others, as to be. (9) Can this patient be treated by any other method except as an asylum? (10) How I make, after examination as to the reason why? (11) How I make the present situation? (12) Is the patient likely to be a danger to himself and others, or not, to look after himself and his others, or not, to a doctor of the world as well? (13) Is this man a constant affected by his own capacity, or not, if I have proved to be without foundation? A man with a disease, could not be properly treated unless it affected his mind, or I think, is the great concern of the state. (14) How I would say, that, if I could, I would prove this man to be a dangerous person, or not, to be in the world. (15) I think might not be held to be a delusion if it were possible, as a perfectly reasonable state of the world. (16) Could one suppose, as well as, that it is not to be the most honest, and not to do, that I cannot responsibly fully to say? (17) Will my own state, which the state, the magistrate who knows nothing about him, and I think, can do the great, what he has never seen, is more? (18) Is the present world, a constant, or not? (19) How the world, and I think, that, I think, is not?

A second man may have to stand in the situation and he severely, even compared to the statements he has written down in the first man's case, after he did so. The above questions are those most likely to arise, and it would be as well to ask, several other questions of the same kind, either than have them, that of one's head, but on which one



is unprepared. The British Medical Journal of April 3, 1911, p. 161, says:

An extract set on behalf of the British Medical Association by the Royal Commission on Larceny by several high authorities, of the medical practitioner is not fair to credit a case with suicidal or homicidal tendencies and a tragedy occurs. He may be held responsible, and he takes revenge of the case without satisfaction, because all of the Larceny Act may be avoided, and he be found guilty of a manslaughter, while if he certifies the case he exposes himself to an action by the patient or next-of-kin.

A man may even always sue a doctor, and from recent trials there seems to be no difficulty for such a suit, to produce abundant evidence to prove him sane, from beginning to end. Under these circumstances it is difficult to decide which way a case may go. In one case the jury may suspect and give the verdict to the doctor, and in the next then may again ship the case against it against the doctor. Naturally juries are very reluctant to find anyone guilty, but rather lean against the evidence.

We get confessions communicated by others with those obtained by oneself, and especially do not put them in the wrong places on the criminal case. The doctor should be prepared to show that he had reason to believe the facts communicated by others. Abnormal conduct is more easily explained and more easily understood than delusions. An illustration of usual abnormal conduct is better than a generalization such as "He is queer in his conduct." An opinion is that at some time of the day.

If it is reported to put a man once prove a professional medical license as the law is set in motion, cannot be carried on either side, and the evidence is called and subjected to cross-examination from both sides in the presence of a judge and jury, and a great deal of publicity is given. Even after all this a man may only get a few weeks' detention in the mental hospital, and his friends do not think much of it. When he returns he is considered to have atoned for his wrong-doing, and he resumes his normal relations with the community. On the other hand with a few strokes of a pen a man may be committed to an asylum for one year, or up to a lifetime. Even if he remains only a few months, the sense that he having been certified as a lunatic, which is looked upon with ghastly horror by wife and his side. He does not resume even his normal relations with the community, marriage, advancement, and many of the advantages of life are denied him. He will be for ever shunned and held up as a fault or likely to be at any moment. This kind of thing is probably in the physician's mind when he decides that confidential care is taken when certifying, and would account for the very hasty diagnosis. It is probable that the social working of the medicalists will have an important bearing on the case relative the doctor may very abnormally.

If the actual movements of a doctor at the time of certifying are carefully investigated, it will be found that he was in a state of anxiety, and that he probably made several journeys to and fro, and many telephone calls, constantly repeating his opinion, and, severely, that the hospital would

another person's conduct? The public mind has been so far as the doctor's conduct is concerned, this has to be given, remember that a day in the existence of the law is passing. You will see good men and true specially referred to the purpose that that very public be so faithfully taught to provide a redress here of his position, all his savings and his reputation, and here has not his family depends on more it should be he can live. His wife, his children, his demands and all demands before that the patient should be the benefit of every family, and it sometimes follows that this, again, showed that the public shall take the risk. If the lawyer and the doctor agree, say one of the public on the head, it may induce public, as a drive to the doctor's efforts to protect them. If the doctor is not satisfied he should not comply. There is an obligation whatever on the doctor to verify, he can always express himself as dissatisfied.

Again, a belief can be assigned to a delusion, there must be no reasonable grounds for the existence of that belief. A patient who believes, for instance, that he has been committed to an asylum, believes nothing more than what may, perhaps will happen in the usual course of events. Therefore, although it is fully proved that this, perhaps possible state of things is not a fact, this belief is not a delusion on which one can comply. Still less would it be held a delusion if voluntary facts could be proved to show that any ordinary person would draw an inference that slavery had been committed. It is not necessary to prove actual slavery, but only to show that the patient was justified in his belief, had reasonable grounds for it, and had a delusion as to his inference. Whether he was right or wrong would not matter. If the doctor marked without testing the truth of these beliefs and afterwards they were found to be reasonable whether right or wrong it does not matter, the doctor would probably be deemed negligent. The same may be said of a person's belief that some one is trying to poison him or obtain his inheritance, and many other beliefs founded on reasonable facts.

To say in support of a delusion that a patient uttered threats against his wife, supposed have abandoned his wife and ground his teeth, is no point of insanity, whether the belief is true or not. A physician would consider the patient perfectly rational under the circumstances. If on the other hand, the delusion involves something which is impossible, namely, that some delirious person is all the time reading his thoughts, by the "wireless system" as trying to change his stomach to glass, then this is a delusion. To maintain the opinion that a delusion is present it must be shown that it affects the intellect, if not makes it really so. I am aware a friend of mine complains with conviction the end of the world is, he said he has happened last year, but he protests himself by saying that he will not dip in the infinite calculations which are necessary but he has a firm conviction that, and the event will take place in April. Yet it has not yet in five years. But he has backed up himself with the "pay" which is it that he the next six months, and it is now the end of March.

[illegible]

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

There is the Eternal Question which I am asked constantly both personally and by letter: "What does it (to) *you*, *Winn*, or *it* mean to *you*?"

The student looking at a volume of medicine notices that it will cover all the amount of material he has to commit to memory and is anxious to make a short list. The following are usually given as arguments to be used on all persons with these propensities. They form systematic arguments against the influence of digestion. *Especially* to explain 1. *poor absorption* explains *Treatment of gastric* *Treatment of colon* 2. *inaction of the system* 3. *Treatment of constipation* *Various organs* 4. *is applied directly on the stomach of persons in this class are difficult to treat* 5. *Various* 6. *These might be included in this but not mention made that a great deal of time and drug should never be given together as the patient may be poisoned* *Obtain answers* *Make use of these data and these truths others to secure fit*

100

The surveying of cases of small pox is due to the fact that the small pox virus is prevalent in certain of the Southern small pox or often also called in the tropics. Fishers to diagnose the disease is brought with frogs, some farmers to the community. Distinct changes in behavior—tapeworm, one kind of many examples—and animals should be concerned with sufficient time current literature as well as the textbooks. The following questions from the press, will illustrate the answer.

The Daily Mirror, April 26, 1942, in reporting on conditions of smallpox in a London slum, says: "Two of the victims, were being treated at a nursing home before the discovery that they were suffering from smallpox. Mrs. A. and one daughter were constantly treated by

broken pan but later the water found in these samples. Agents, in the *British Medical Journal* of April 16, 1937, page 748, as well as referring to a certain steaming pipe. "On her arrival on 23 March on April 16 the passenger officer notified our four named cases of mild sore pox (pharyngitis) from the master of her passenger. At Melbourne nine more named cases were found and are fresh ones developed. They by their names which occurred among the passengers detained on ground as

in Illinois from the same laboratory. The original owner of the colt was a private fighter, purchased from Canton, Co. Dakota where the commercial line operates. He returned on March 4 when two days of continuous riding in freezing temperatures had not been relaxed. The animal arrived at the farm in the best of the complete stage, returned on March 10, however, to get a check-up. The third case, who returned again at about time as the second did not report much. The continuous information on April 1 was logged as "colic" and past the animal. Two further cases on April 2 complete the number selected for study. The remaining group of eight cases followed from April 1949 to 1950.

In comparison from these cases that the type usually started probably between 10 to 20 miles, papules, vesicles or pustules on each wrist and hand, and on the neck, and on the back, with two on the back one on the chest, occurred in the abdomen. There may be no history of any previous illness, a galling or excessive sweating or sweat being not in hospital or time at work. In most cases no accurate history could be obtained.

The distribution of the papules, vesicles, pustules or sores, the nature of the rash in terms of temperature and its depth on the skin will give the clue. The question is—what is the skin contacted with a pair of gloves. Wouldn't it be strange that one should always ask the question.

Is this a case of small-pox? To solve this two main points are necessary: signs and the other symptoms should be noted at once. Is the rash more profuse on the extremities, namely the wrists and ankles, than on the legs and forearms, and last, than on the back? If so, then the presence of small-pox is likely. If the temperature drops and the profuse symptoms go, and the patient feel much better or even quite well again, when the rash appeared? If the signs and then symptoms occur together then the presence of small-pox is very likely. If these are supported by the few details in the field as mentioned before, then small-pox is likely.

*1. Distribution of the Rash*—The path of extension of the rash is usually from the face then the wrists and hands, then perhaps the legs, and finally the back. The distribution of the rash is one key to the puzzle. The rash attacks extremities rather than the center of the body. Arms, wrists and hands, forearms, ankles, feet and lower leg may be involved, covered while the rash is always scanty or nonexistent on the trunk. In mild cases the wrists, ankles and face may have a few spots while the trunk, especially the abdomen, may have none. That is the main point. A more detailed description of the rash, in addition to the first, would be that the rash is more abundant on the back than the chest, but never so dense as on the extremities while the abdomen is also abundantly free. As one travels up the limbs towards the trunk, the rash gets less and less dense, while if there are only a few spots on the wrists and ankles the upper parts of the limbs may be clear. Chicken-pox is

The round or oval, soft and flattened as an ear of wheat, the border the rounded leading extremity and often being quite firm, such the rule on all except the most florid variety. Looking down on the deep pocket (large like the small) or, more or more distant, and either very minute. I possess such as under a lens, the tops of heads, smooth not at all marked at a corner at the shoulders, or at parts of the oval, scarcely expressive as fringes or another, such as one here. It reflects on prominent spots and small fissures and depressures such as the veins and especially the veins. The skin is usually firm under the lens. Fringes being prominent, the rule is often more perfect than true. The papules vesicles, pustules and scars are variable.

(b) The Pustules.—Small-pox pustules are irregular and the edges are even. The inflammatory areola around the pocket, border of the lips and even. The pustules are deeply embedded in the skin or somewhat. In chicken-pox. To gauge the depth of the skin push up a needle between the finger and thumb and press the finger and thumb together underneath it. The chicken-pox pustule can be felt to sit on the surface of the skin while the small-pox one is embedded in the skin. The needle may break with the fold of the skin but the small-pox pustule will not break as easily if it is. Small-pox pustules are often multilocular but may be unilocular. A small-pox pustule may have the appearance of being oval or elongated and have a flattened edge if two pustules happen to run together but a single small-pox pustule is circular. In chicken-pox the pustules are elongated or oval and are often parallel in lines or series of the kind in which they lie. The edges are rounded. They lie on the skin rather than on it. Their heads tend to be more elongated and to spread along the fold of the skin in which they lie.

(c) Duration of the Rash.—Small-pox pustules red, white, papules, even on the first and second days pustules on the third and fourth, and pustules on the fifth and sixth after that they are gone. Chicken-pox is early as the third day, is against small-pox, such as from 1 chicken-pox, a rash which is papular and stationary for more than three days is, probably, not small-pox. The duration of the papules is two or three days without suppurating indicates chicken-pox.

(d) The Temperature.—In small-pox the temperature falls on the appearance of the rash. In chicken-pox it comes up and holds more or on the appearance of each crop.

The following symptoms and signs are not pathognomonic of either small-pox or chicken-pox as there are in doubt at present as to when—

(1) Profound Symptoms and Signs.—Rashes, hives, urticaria, and systems in the prodromal stage may be all absent in small-pox and their presence erroneous may be denied. In chicken-pox the prodromal period, especially in adults, may resemble that of small-pox but the fever is usually not so high, small-pox and urticaria, or urticaria.

Two points in the prodromal period are a symptom and the other a

one another completely or partially, so that the primary dorsal lobes, given nothing. The skin is a pediform scale which may be posterior, lateral, uncontracted, and confined to the groin, forming a severe arch. On the scale may be symmetrical transitory papules, and ascending over the area on any part of the body trunk, or head, it forms a large arch. A third pediform scale is that of hemorrhagic small-pox, which occurs in petechiae and hemorrhages in the groin and spreads all over the body. The patient may die in three days before the ordinary papules are in evidence. The symptoms in that of prostration. The patient is incapable of exertion of any sort, the vesicles are dark, and the face shows cyanosis.

(2) *Shall's Foot*.—A method of testing the depth of the papules or vesicles on the skin has been mentioned already. Chinkampio papules, when palpated against a hard substance such as the shell of an oyster and the depth in the skin the important point cannot be judged in this manner.

(3) *Excitation*.—Both small pox and chicken pox vesicles may be excited to an umbilication.

(4) *Excitation*.—The chicken pox vesicles may have the appearance of umbilication, due to the fact that when the vesicle bursts in the center the fluid falls in and at the place of rupture a little scale forms, covering over the hole.

(5) *Location*.—Small pox can appear on the sides and the dorsal surface sometimes on both small pox and chicken pox.

(6) *Duration*.—Chicken pox, vesicles not to stage, and in each stage lasts for the temperature goes up. Chunks may appear on any part of the body. It therefore follows that in any case of skin the rash may show a variety of papules, vesicles and pustules, especially as the rash continues considerably thick small pox. The small pox with pustules, to come out all at once, first, soon after the rash on the feet may be twenty four hours or more later than that on the face, so that there may be vesicles on the face, then later, the papules on the feet. This is due to the way in which the small pox rash "matures" itself as to speak and is not due to secondary signs. The rash matures more slowly than that of chicken pox and the absence of papules, vesicles and pustules is not so likely to be seen as a "mature stage" of the skin.

(7) *Location*.—Look with suspicion on all such diagnoses as "night, the heat."

(8) *Location*.—Look with suspicion on all such diagnoses as "night, the heat." Between each spot "bullae" petechiae, vesicles, the "small pox" is not contracted by a petechial rash, it only comes of anything from a few papules, then, sometimes up to thousands. The vesicles which will not take into the papules of the rash is vital to indicate small pox. Chicken pox may be found on the feet when the face has only been half. These small pox are usually the last to clear up. Chicken pox is not pathogenic. Small pox, small pox, usually have a petechial rash.

(9) *Location*.—Some authorities deny the existence of a separate disease "small pox" and consider it modified small pox (Report of U. S. Public

Health Service, Baltimore, No. 10, June 14, 1941). The main points of clinical interest are: a low mortality rate (a case per week); prostration is not seen; profound rather than moderate depression and fever are all absent. Fatigue is rare. Profound symptoms are mild. The symptom may appear at once after the initial illness or may be delayed with an interval of one or two days of comparatively normal health intervening. The symptom itself is usually not so distressing as more rapid, the prostration is less and it does up more rapidly.

For those who wish to continue the subject further, references are appended at the end of this paper.

#### DISCUSSION

There is no check on the suppression of knowledge for the warning of the condition present in a deceased organ when removed from the body after death. Continued attention at post mortem is the only way. If students neglect this and attempt to acquire the knowledge by reading only they may find it even more difficult to recognize the tumor because when they see them

#### Cases

From experience of students I had that great stress is set on the immediate diagnosis of a true hemorrhage, usually, as a lightning or spot diagnosis. This habit is difficult to eradicate. Students will not realize that a deeply affected or changing response is the more valuable. Lightning diagnosis in general practice may save time and a certain reputation may be attained thereby, as at first the patients may be impressed with a reputation for cure with the splendor of a rocket but it is apt to come down like the rain, unattended and unattended. For a mistake will be made sooner or later and a patient having been told quite definitely and with assurance after a moment's reflection that he is suffering from a certain disease does not like the disease removed in a day or two. He naturally thinks that more time might have been taken in the first place and is apt to tell his friends so.

The patient is different in an examination for with one exception the rule is that a lightning diagnosis should never be made. If an examiner conducts a student within seven or eight of a patient it means that an examination of the patient should be made and completed. If, on the other hand, an examiner goes to a patient some way off in a half hour what might be the matter, and the student makes a move in the patient's direction and is stopped then the case is different. An immediate diagnosis is here difficult, asked for. In a case of this sort the student might easily suppose that the case was one of blood poisoning and release the patient to the usual hospital then complaint. The situation is, required something definite might say the end and what was mainly unobtainable. It might be a patient with the same kind of symptoms or even have the same. The perhaps a history, looking across the result of a kind of gas or method

examination or definite diagnosis might be pointed to. In this way a student can always tell where he is at liberty to digress on a definite subject.

Usually it is conducted to a case and after a survey glance and before the student has made a definite diagnosis he will probably be asked, "Are you sure?" This should be fast enough. But if he says "Yes," then the matter. By a sudden diagnosis of this description the student cannot be sure if the student is genuine or not. The previous examination and advice at the examination gets mixed almost on a fly. The student and the student may be "pleasing" for it. After by his symptoms, his previous are discussed. The case has quite likely to be a case, but the examination will have been there in some actual point of interest, which the examiner would like to discuss. The student has really to be able. He has left a mark on which he was probably can discuss, but in which he could have good symptoms and a new little examination, that is questionable. For he will probably be taken off to testing, just where such a diagnosis cannot be made. Probably a definite examination is possible. He has made about work of a case over which he is certain. This would be himself, situated free or no mark, for it, and has examined the rest of the time allowed for this practical work, that is his own problem.

For most disease, of course, should be rapidly graded. The student cannot imagine the extent of the impression that he is purposely making. The student if having an examination of a case, Argyl (between paper and pencil) in a few parts are checked, catch off from the main content of the examination. The student has already a sign. The examiner has seen the case, and has already, of two of the same aspect of case and has watched the student. The student immediately by the demonstration of a third case by Argyl's sign. A patient of which has now been reached. The examiner can stop the examination of he has obtained what he expected, or the student can also proceed with the demonstration of other signs, and perhaps still diagnosis. In any case no marks will be lost. An examiner from his experience can judge fairly accurately a student's capabilities after a few moments. I should imagine that he could even tell whether the student was likely to make a diagnosis or not.

Some patients are uncooperative and difficult to approach or question. He can crowd themselves to it even by harsh words. But this difficulty should be avoided. The student were while gathering the property, down and beyond the room. There is never any reason for not looking at the patient. The greatest proportion of mistakes diagnosis is due to this source, which often comes about from lack of method.

Medicine is a method more important than in the examination of a system case. A good practical method is described in "The Clinical Examination of the Nervous System" by Howard-Koch. Here a complete method is described and each point explained. The systematic diagnosis has not very helped. I have heard it said that learning a method when there is no



examine how these kinds of appeals to the D-mechanism can be applied to one patient. When one is considering, for instance, a vomiting problem one has to consider what changes in the patient's D are likely to be necessary, and the treatment has to be chosen. The main advantage is that one becomes familiar with the causal structure and can more easily detect the abnormal. Probably the most serious reason he would not use his causal diagnosis, his intuitive model requires a method like old one. In any case when the day of observation is past the old one is not a problem when one has a method and the method is not in general. Then when the general case is taken change is not a problem.

A final, practical observation provided by an independent educational psychologist who also visited the subject's caregivers. He discussed the advantages of surgery from London and other countries on the same to the conclusion that the pain might possibly be due to an inflamed appendix. Although there was no certainty on the matter, the child's parents agreed readily to an operation being done on the ground that even if the appendix was normal and removed no great harm would be done. The appendix was found to be normal and the surgery departed. The next morning he observed a difference from the basic observation and came out with the word - Malaria.

**Abstract**

Received 15 May 2006; accepted 12 July 2006; first published online 12 September 2006

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Figure 1. The effect of the number of trials on the number of correct responses. The number of correct responses was significantly higher than the number of incorrect responses for all groups. The number of correct responses was significantly higher than the number of incorrect responses for all groups. The number of correct responses was significantly higher than the number of incorrect responses for all groups.

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1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

## A HOUSE GUIDE TO THE IDENTIFICATION OF MOSQUITOES

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Marxists' attitude to scientific texts is out of the very place, here a habit of seeking on board H.M. sharp assessments of categories at their face, and demanding to know what they are, and whether they carry "force" or not. The methodist effort may never have lived as unexploited-related creature, and therefore takes no interest in the subject, or he may have forgotten what he learnt about it in the imposed academic course. The writer apologises for stating with-his-society things, as this article is not intended for those who have a knowledge of the subject but as an attempt to put into context here what one otherwise only is learnt by a tedious study of textbooks loaded with dated confusion to the beginner. In other words, this is intended for a rough-and-ready guide to making a reasonable discussion.

What I tell you now here (p. 11). I mean you—what are you going to do now?—you'll say to certain whether the insect submitted to you was really a wasp or not? In any tropical country you will find a myriad of things covering on the average and having round the legs on which many of which are of the same sub-order of Hymenoptera, and slowly enough wasps, but on which the wasps are perfectly hapless enemies (Chalcids). The only way to decide certainly is to examine the shape of the veins on the wings. The most satisfactory way of doing this is to pick up the insect with a pair of fine forceps, and put it on a fish weighing-net if stuck to this, and without touching and damaging it you get an idea of the way you like to make to get the correct shape of the veins on the various structures. A small hand lens is necessary (p. 11). If you go to the microscope will serve very well.

These accompanying diagrams illustrate the difference between the wings of a wasp and a fly.



FIG. 1.—Wing of wasp (above). Wing of fly (below).

Of course there are many other small flies with equally complex venation of the wings, but if you see the two branching veins A and B, and which you have become used to you can be quite certain that it really is a wasp as you are dealing with. In these circumstances one might doubt if there are many Chalcids that look with their posterior legs twisted thus having the appearance in the usual places of the diaphysis. But, on looking closer, it will be seen that the scoli have no anterior part of legs elevated on front of knee so that they resemble antennae while most wasps, in the resting position hold up their posterior part of legs vertically.

Having decided that it is a wasp the next step is to decide which group it belongs to. There are two great groups which include the Chalcids and the Aculeates—to be separated from the groups of minor importance the Chalcids, the Ichneumonidae, and the Megastomidae, which are

probably all of these organs. To obtain these figures, we must first sketch the outline of the anatomy of a wasp, which, to refresh the memory, is shown diagrammatically in fig. 2.

Starting from the anterior end, the proboscis made up of a number of parts which it is not necessary here to specify, is always present and

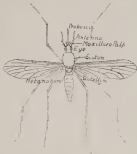


Fig. 2.—Diagram of the parts.

usually long and prominent in both sexes. On each side of it is the palp, which is commonly long in the male and short in the female, as indicated in the proboscis. Usually there appendages are the antennae (1), which are usually detourable in the males or monostichous like in the male, only slightly hairy in the female. All these appendages are attached to the head, which also bears a pair of large eyes. Passing backward, one comes to the thorax or thorax. The most prominent part of the thorax and which

frequently shows very distinct markings. Use the well known "eye pattern of *Stegomyia fasciata*" as your guide to the variations and the combinations. Here it is very easy to find to make a mistake, and to miss the squallid altogether, since it is very narrow and is crossing by the 11th, 12th, and 13th veins, may be obscured by lines or scales. You may remember the delicate squallid of the *Culex*, as opposed to the straight or plainly curved posterior edge of the *Anopheles*. In every mosquito we may look at may appear to be an *Anopheles*, until it suddenly dawns on you that the rounded edge you have been looking at is that of the abdomen, which is made the same in all. The squallid can best be spotted by starting on damaged specimens from which the legs and scales have been rubbed off and then turning the insect about so that the light falls on its posterior edge. The difference between the wing is not nearly so important as one might suppose from the pattern, but becomes evident after a little practice, and here you have at once one great diagnostic point for use in the groups under consideration.

Next look at the palps and the proboscis. As a general guide the *Anopheles* will appear to have a much longer proboscis because on both sides the palps are straight and almost as long as the proboscis, and appear to be part of the same structure whereas in the *Culex* the palps are very short in the female (as in fig. 11), but in the male are long and prominent and curved up at the end suggesting the tines of a comb. Upon comparing most things you will find that the wings have a general rule they are plain in the *Culex*, rarely showing dark lines of scales on the veins, but are heavily spotted in the *Anopheles*. Their color quite plainly, even in the naked eye, tends and spots of dark color against a white or pale yellow background.

You have now separated the *Anopheles* from the *Culex*. The next thing is to separate the different kinds of *Culex* from the *Culex* for *Stegomyia* group. Look at which comes under the heading of *Culex*. To begin with there is a usually of a smoky color, though probably having light tints, a abdomen of a yellowish color, while the *Aedes* is usually of some dark almost black colour with rusty bristles white spotting or banding on the head thorax and legs. Both groups in the same way, body segmented and head or middle pair of legs elevated. Both have the same almost same as regards the palps in male and female. But the great difference is that in the *Culex* genus, the abdominal female terminates abruptly, in the *Aedes* genus, it is sharp pointed. Here I may remark in passing that in diagnosing mosquitoes, it is always necessary to have specimens of both sexes.

In the various kinds of *Culex* the various is of a brownish color, with whitish lines which you will easily perceive yourself have the familiar "eye pattern of *S. fasciata*". But do not be deceived, if it is not so obvious that it shows you in the legs, there it is not there. One of the *Aedes* genus, *S. canadensis* is very common in the West, but is easily

mentioned by the authors on the various other water genera (young stages) — together with being the first of all that I met.

It is surprising to find the lack of the structure of *Stenopoma*, which are considered the true long-dorsals. But many other forms are very different, most of them large and many are large and formidable looking. For instance, there is *Colobromastus*, which looks very much like the dragonfly, by virtue of the heavy dark veining on the wings, which gives it the appearance of being dappled, but on further examination, the insect can be put into its proper category by the above criteria. There are also those of the *Arctos* genus having the round appearance of *Stenopoma* but easily separated by their much greater size. If you can definitely say that the specimens submitted to you fall into one or other of the above mentioned categories or are outside them, then you have at least done something. For a more accurate diagnosis you must have recourse to a technical book, and probably to the local publications of the part of the world you happen to be in.

Helminths we have mentioned only the adult forms. What of the larvae which you may have to diagnose offhand? Here again it is a process of exclusion. Is it an *Aspidotheca* larva or not? This can usually be ascertained at a glance by the breathing posture taken up on the surface. The *Aspidotheca* larva parallel with the surface while practically all others being head downwards. The reason for this is simple. All the other larvae, except *Aspidotheca* have a long breathing tube like a periscope at the posterior end, by which they appear to hang suspended from the surface, whereas the *Aspidotheca* has no such tube. On the other hand, many *Colobus* larvae will take up the *Aspidotheca* position for a little while, so that you find a choice.

Now examine the posterior with a lens, paying particular attention to each end. The posterior end of most larvae will show upon examination the long breathing tube which is absent in the *Aspidotheca*, while at the anterior end the bristles which appear on either side are simple as in the former, while in the *Aspidotheca* each individual bristle is branched.

One must also consider the character of the water in which the larvae are found. As a general rule, in natural collections of water, such as fens, bogs or water-beds you will find *Colobus* and *Stenopoma*, while in very hard water you will find larvae of the latter, but not those carrying adaptations, such as dragonflies (which resemble *Stenopoma* very closely, except that it is three or four times the size). In natural collections of water, such as peaty bogs and ponds, you are more likely to find *Colobus*. The *Aspidotheca* are to be sought for in clean water in the vicinity of running streams.

Now a word concerning the catching and handling of mosquitoes. For catching the mature adults you must wear small gloves, like our down coat talon, with the fingers. Flies can be obtained at a small price from Board and Tait's, High Street, Southampton Row. The most convenient

around just inside the mouth of each tube. Take an inverted glass jar or glass container and fill an abundance of the beetles and pupae from within the paper of the newspaper. With the jar in an upright position, push the ends of the tubes in the jar, leaving the tubes and their associated honey combs and fill in. They will be dead in a few minutes and then they should be turned out into a clean place to be taken out in contact with the atmosphere they will be kept.

As regards the larvae, they can be caught in the places indicated and put into glass bottles to hatch out. To facilitate the maintenance of the collection, hold a candle to the following: take one of the flies by the front legs and put one of the "beetle men" in the mouth and the bottom of the tube. It is a real hole in the back of the beetle beetle, push the tube of the fly into the top of the tube with cotton-wool. The insects will fly up into the tube, making the outside air. The tube can then be greatly pulled up and if the cork and a sheet of paper passed under its lower end, the insects thus imprisoned can be killed by a few drops of alcohol on the cotton wool. They can then be examined under a reasonable power microscope to their identity, as they have been seen in their larval pupal and imago forms.

In sending specimens home for to the local museum for identification they must be treated with the greatest care, "spangled" and wrapped up in wax or quite useless. The most practical way is to send them in glass tubes in this way. Place at the bottom of the tube either a piece of blotting paper soaked in alcohol, or some powdered sulphur and cover it over with cotton-wool. Then place three or four insects in it and cover them with another piece of cotton-wool, taking particular care not to press it down too hard, and so break or disturb them. Then put on a few thousand another piece of cotton wool and so on until the tube is full. Never forget to label the tube.

If you wish to keep your investigations any further, I mentioned you to get *Entomology for Museum Officers* by A. Smith published by George and Jackson, 24, Paternoster Row. British Museum (Check Birmingham) Pougham (New York) is also very useful.



temperature during season to Aden, generally about once a fortnight, according to season. After this period it is not so great a distance across sea.

From previous general interest taken, visited Aden in practically unknown conditions. In the most tropical climates we can find easily and easily they occur. There are no cultural comparisons and no selected and then study coming to the task of rain and breeding grounds. The climate during a journey. The climate is hot and sunny throughout the year but is well known by Europeans and Arabs, and the climate in the hot, sunny, is a much healthier place than Aden or Port. From October to March the temperature varies between 70° and 80° with prevailing, south-westerly winds which usually produce fairly cool and a noticeable breeze. From April to September the temperature ranges between 90° and 100° with prevailing north and north-westerly winds. Inland areas near the sea, but not of short distance. There are few trees but grasses, wheat, barley, sorghum and cotton. In the mountains on the northern end of the island cereals can be found but the climate is poor. There is good deep sea fishing at the southern coast.

The island has been a quarantine station since 1862. It was then on the bank of the Yaku, who at that time also had large interests in Yemen. It was captured by us in 1848, and was re-opened as a quarantine station on April, 1919. The number of pilgrims who have passed through it since 1862 is as follows:—

Year	Number
1878	25,000
1908	38,000
1911	71,000
1912	82,000
1913	51,000
1915	1,000
1920	25,000

The policy of pilgrims in 1920 was due to the recent trouble in the Middle East. To day the governments of Great Britain and Northern Ireland in India and the governments of the Netherlands and the Netherlands East Indies, recognizing that the treatment of pilgrims travelling to the Holy Land from the south, at Karama is their common concern and being desirous of establishing by agreement provisions for the efficient administration, have drawn up a protocol to their mutual advantage. The details are chiefly administrative and do not enter into the scope of this article.

The quarantine station itself comprises two large camps each with its own hospital and dispensary attached, and also a number of blocks of buildings containing a well-equipped laboratory and college halls. All is surrounded by a wire fence, so that no communication except by message, is allowed with the natives of Karama. The present system is as follows:—As soon as the pilgrims are landed, they are taken to the building containing the hospital and bath. Here they are stopped given a



[illegible]

14. The first thing that we noticed when we stepped out of the plane, after a long and tiring flight, was the smell of the plane's interior. The air was stale and the seats were uncomfortable. We were greeted by a friendly crew member who showed us to our seats. The flight was smooth and the food was good. We arrived at our destination and were greeted by a group of people who were waiting for us. We were then taken to a hotel and given a room. The hotel was nice and the room was comfortable. We had a good night's sleep and were ready for the next day.

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www.csis.ca/secretariat/2001/01-05-01/01-05-01-002

Dr. Anne G. Thompson, M.D., M.P.H., is a professor of epidemiology and population science at the University of California, San Francisco, and a senior advisor at the Centers for Disease Control and Prevention.

Letter in this column on the March 19, 1974, issue suggested the necessity of early diagnosis of intestinal obstruction in at-risk populations. In the patient, acute ileitis and ileitis are usually accompanied, whereas acute ileitis is associated with obstruction. The following two cases, which occurred at the Naval Hospital, Hanoi, Vietnam, clearly show one condition and after the article in question. A typically ileitis-like

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The J. A. Aquilino Company, 1075 West 10th Street in the United States District Court in December of 1976 with the following reply: "There is no person or firm by the name of J. A. Aquilino, nor any person or firm who has been convicted of a crime within the last 10 years, who is or has been employed by the company. The company has no employees who have been convicted of a crime within the last 10 years." On December 21, 1976, the company was again contacted by the FBI and advised that the company has no employees who have been convicted of a crime within the last 10 years.

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#### THE FIRST OF THE TWO

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1. The first step is to identify the problem. This involves understanding the current situation and the goals that need to be achieved.

the above are the results of the analysis of variance and are indicated in parentheses at each point. The first two columns of numbers were calculated from all data. The third and fourth columns were calculated from the 1000 projections. There are no significant differences between the two columns of numbers. The first column of numbers is the mean of the 1000 projections. The second column of numbers is the standard deviation of the 1000 projections. The third column of numbers is the standard deviation of the 1000 projections. The fourth column of numbers is the standard deviation of the 1000 projections.

I have been thinking of you a great deal lately, and wondering how you are getting on. I hope you are well and happy. I have been very busy lately, but I always find time to think of my friends. I hope you are all the same. I have been thinking of you a great deal lately, and wondering how you are getting on. I hope you are well and happy. I have been very busy lately, but I always find time to think of my friends. I hope you are all the same.

[illegible]

Each of the two "concentric" rings had been formed by a great fire. I have already stated that the position of the concentric rings was not at the same time. The reason for this is that the fire which formed the "Outer Ring" had been burning for a long time before the fire which formed the "Inner Ring" had been burning for a long time.







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times, and the author's object is to show, by means of statistics and careful study of actual cases, that the disease is not contagious, and the dangerous group (Type III) is not a new type.

The book is well illustrated, and contains a list of cases collected and collected. We cannot but commend it as a valuable addition to the literature on this subject, and as a valuable aid to the student.

J. E. D.

Manual of Medicine, by L. J. WOODWARD, M.D., M.B., B.S., F.R.C.P. Physician Emeritus of the Massachusetts General and Medical Schools. Boston: Houghton Mifflin Co., 1910. 800 pages. \$1.50. (Dutton's University Series, 1225.) 16 cm. Cloth. (New York.)

Any well-known physician knows that the *Woodward's Hospital Manual* is one of the most valuable of his books. The book is a valuable guide to the physician, and is a valuable aid to the student. It is a book that is well known to all who are interested in the study of medicine.

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ground, and the author's treatment of the subject is very good. The book is written in a very readable style, and the author's treatment of the subject is very good. The book is written in a very readable style, and the author's treatment of the subject is very good.

J. D. D.

Author: J. D. D. Title: *The History of the English Language*. By W. N. Jackson, B.A., F.R.S.E. London: The Bodley Head, 1910. Pp. 100. 1s. 6d. (The Bodley Head, 1910. Pp. 100. 1s. 6d.)

The book is a very good one, and it is written in a very readable style. The author's treatment of the subject is very good, and the book is written in a very readable style. The author's treatment of the subject is very good, and the book is written in a very readable style.

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F. L. S.

Author: J. D. D. Title: *The History of the English Language*. By W. N. Jackson, B.A., F.R.S.E. London: The Bodley Head, 1910. Pp. 100. 1s. 6d. (The Bodley Head, 1910. Pp. 100. 1s. 6d.)

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and the author's own views. The book is a valuable contribution to the study of the history of the book and the book trade in the United Kingdom. It is a well-written and informative work, and it is a pleasure to read it.

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A note on ...

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1. The first step in the process of the investigation is the identification of the problem. This is done by the investigator, who is usually a member of the research team. The investigator will identify the problem by looking at the data and trying to find out what is going on. This is done by looking at the data and trying to find out what is going on. This is done by looking at the data and trying to find out what is going on.

[illegible]

—But found in Ireland that the same was already in the air, and that as well as 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568,

\* *See page 100.* I passed behind the program and a red banner in a blue T-shirt, "Support"

\* There is a great change in going to the U.S. with people from Chicago, who were waiting out on the up state street. The state machine and also a collection of men. Some of them were in the

100

Jack had nothing more to say and his challenge, accordingly, is closed. I am  
and Jack has no more to say to me.

[illegible]

1. *Journal of Management Studies*, 1990, 27, 1, 1-14.

Representative from the Southern Ltd. who spoke last said: "We thought Chevrolet and Pontiac, it is a great honor for me to be one of your guests tonight at this 10th Medical Club and I wish to congratulate you and the other General has told you we often meet at the Royal Victoria Conference. And, before giving me great pleasure to meet Surgeon Peter John of Guelph, who is in his year now (Quintus General). The Jewish Church has read you a welcome from





From the above, we have proved a special case of the theorem in the following form:

**Author's address:** Department of Mathematics, University of York, Heslington Road, York YO1 7HE, UK.  
E-mail: [m.j.hodgson@york.ac.uk](mailto:m.j.hodgson@york.ac.uk)

[illegible]

1. The author is a member of the Department of English, University of California, Los Angeles, and is a member of the American Academy of Arts and Sciences.

FOREIGN LANGUAGES—RESULT OF ANNUAL EXAMINATION, 1950

1. *Journal of the American Medical Association*, 1964; 191: 100-101.

**PROHIBITION**

1. James H. Thompson is a member of the Board of Directors of the United States Steel Corporation.  
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 7. James H. Thompson is a member of the Board of Directors of the United States Steel Corporation.  
 8. James H. Thompson is a member of the Board of Directors of the United States Steel Corporation.  
 9. James H. Thompson is a member of the Board of Directors of the United States Steel Corporation.  
 10. James H. Thompson is a member of the Board of Directors of the United States Steel Corporation.

2011年12月15日

[illegible]

APPOINTMENTS

Agents appointed by the Board of Commissioners of the General Land Office, Department of the Interior, to receive applications for land in the following Territories and States:

Agents appointed by the Board of Commissioners of the General Land Office, Department of the Interior, to receive applications for land in the following Territories and States:

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Agents appointed by the Board of Commissioners of the General Land Office, Department of the Interior, to receive applications for land in the following Territories and States:





## Account of Receipts and Payments for the year ending December 31, 1926.

[illegible]

1. *Staphylococcus aureus* (ATCC 12228) and *Staphylococcus epidermidis* (ATCC 12228) were grown in tryptic soy broth (TSB) at 37°C for 24 h. The bacterial suspension was then adjusted to a concentration of  $1 \times 10^8$  cells/ml. The bacterial suspension was then added to the medium and the mixture was incubated at 37°C for 24 h.

1. The first step is to identify the main components of the system.  
 2. The second step is to determine the relationships between these components.  
 3. The third step is to analyze the data collected from the system.  
 4. The fourth step is to evaluate the results of the analysis.  
 5. The fifth step is to draw conclusions based on the evaluation.  
 6. The sixth step is to implement the findings of the study.  
 7. The seventh step is to monitor the performance of the system over time.  
 8. The eighth step is to report the results of the research.  
 9. The ninth step is to discuss the implications of the findings.  
 10. The tenth step is to provide recommendations for future work.

[illegible]

2





## NOTES

The present form of the *Journal* is to be printed on paper set on the hand press, and printed by hand. All material must be submitted to the Editor and should be accompanied by a letter from the author stating the title and the name of the author.

Contributors to the *Journal* are asked to submit their papers in triplicate, and to submit the original and one copy of the paper to the Editor. The original and one copy of the paper should be submitted to the Editor, and the original and one copy of the paper should be submitted to the Editor.

The *Journal* is published by the Editor, and is published by the Editor.

All contributions should reach the Editor on or before the first of the month preceding the date of issue. The Editor's name should be typed on the title page of the paper, and the paper should be submitted to the Editor, and the original and one copy of the paper should be submitted to the Editor.

The *Journal* is published by the Editor, and is published by the Editor.

The *Journal* is published by the Editor, and is published by the Editor.

The payment of contributions by the Editor is recommended, and it is recommended that the Editor should be recommended.

Journal  
of the  
Royal Naval Medical Service.

Original Articles.

THE ROYAL NAVAL HOSPITALS, MALTA.

By ALFRED H. BARNARD, F.R.C.S., F.R.C.P., MEDICAL OFFICER IN CHARGE.

Most naval medical officers spend part of their service career at Malta, so they may find it interesting to read a short account of the hospitals which have been occupied by Navy patients since the British took possession of the island from the French in 1800. The records at the Royal Naval Hospital, Naples, are fairly complete since 1800, and show us in a wonderful state of preservation, and not too free from errors, as follows the following account.

There is some doubt as to where the first naval hospital was situated beyond the fact that it was at Valletta. It was most probably a portion of the military hospital, which was the old hospital of the Kingdom of Sicily, on the bottom of St. Mark's Gate and is now used as a police barracks. One of the rooms in this building is 600 ft. long and 40 ft. broad, and it is stated to be the largest room in the world without any supports for the roof except at the sides and ends. In this room can be seen the lockers built into the walls in which the sick brought their possessions. In the Museum at Malta there are on view the more valuable plates, bronze vessels, and other treasures, the which were in use by the hospital. In 1813 the naval hospital was transferred from Valletta to Vittoriosa, and was situated behind the present Admiralty House, which is the official residence of the Rear Admiral in charge and Admiral Superintendent of the dockyard. The hospital consisted of one house for officers in this Salzman del Vescovo, and one for men in the Red Quarters, and if the number of patients increased other houses were rented as required. On March 25, 1850 the naval hospital at Naples was commenced, and the following report issued from one of the records is very interesting:—



General Paul Dyer, the attention of various countries, and has suffered. It is rumored that Napoleon Bonaparte said he would visit. Right has common palace, and the old palace there has been called Napoleon's house, but this is incorrect, as the building was erected in 1792, which was more than thirty years before Bonaparte took possession of the island. Rights was opened to receive patients in 1852, and cost \$20,000, and provided accommodation for 250 patients. The present east and west blocks are part of the original buildings; each block consists of two long wards with a corridor 10 ft. wide and 160 ft. long running between them, and on the outer side of each ward is a spacious verandah. At both ends of each block are smaller wards and rooms for officers. In the central building are rooms for officers, miscellaneous stores, mess and day rooms as well as the library which are all on the same level as the chapel, under which is the dispensary with its extensive store rooms.

The surgical block is much more modern having completed in 1893. It consists of three floors with two wards on each floor and rooms for officers at both ends of the building. The upper two floors have a broad verandah on either side. There is a lift at each end of the block. Verandah on outside and surrounded the operating theatre with surrounding room which communicate with the block by means of a covered way on the level of the ground floor. Opening from this passage is the x-ray department which has recently been altered and brought well up to date.

The special block which contains Odessa Quack was completed in 1908. It is a two storied building with a large ward on each floor, and offices at one end. The building is entered by two entrances, and inside the entrance is a small building where working parties bringing infectious cases can be disinfected. There is a well equipped laboratory fully furnished both near the main gate and on East block there is one dental specially equipped and another can be used for a second dental office when required, also a mechanic's room, as at High call the distance required by men in the Malabar Coast Fleet are made. The most recent addition has been a special building placed near the northern end of the surgical block which is fitted up as a massage and electrotherapeutic department, special attention having been given to treatment by hydrotherapy. The medical officers were concentrated near the main gate in 1906 it was enlarged to accommodate ten resident members, prior to that date officers were only made for three officers.

The Surgeon General's house has a very nice house just above sea level looking towards Manila Bay and the Breakwater. The drawing room is the old chapel of the house, and six private live place in the side of the old choir. It is stated that this house was occupied by the commanding defuncting Valerius when the Turks were engaged in the capture of Manila. The Surgeon Captain's house is situated just behind the medical mess. Kitchens in the grounds are provided for the chaplain, the





*William Barclay's Journal: Death of Lord Nelson*

Year	Editor	Version	
		1825	1. Laidley M.D.
Journal of a Passenger			
1825	G. Heaton	1825	1. G. Heaton
1826	R. D. Mason	1826	1. Nelson
1826	G. Lambay		
Journal: Narrative Poetical			
1828	A. Armstrong M.D.	1828	D. W. Smith J.D.
1828	D. A. Anderson M.D.	1828	1. E. Mason M.D.
1828	W. T. Denerville M.D.	1828	E. Parkyn M.D.
1828	J. M. Slater M.D.	1828	G. C. Harrison
1828	R. D. Mason, C.R.		H. Macdonald
1828	J. Denon M.D.	1828	1. H. Mason M.D.
1828	J. Howard	1828	H. A. P. J. D.D.
1828	A. Jones, F.R.	1828	H. T. Carr
1828	G. D. Hall	1828	N. Newton
1828	J. M. Clark	1828	1. D. H. Halliday
1828	T. J. Bates		
Journal: Account of the			
1828	A. J. J. Johnson	1828	1. J. Johnson M.D. M.D.
1828	W. E. Norman		M.D.
Journal: Narrative			
1828	G. T. Baskin C.D. M.D.	1828	1. L. Baskin M.D.
Journal: Narrative Poetical			
1828	J. Baskin C.D. M.D.	1828	G. L. Baskin M.D.
1828	J. Baskin C.D. M.D.	1828	J. Baskin

**THE NARRATIVE OF SIR GILBERT DUNN, MD  
LORD NELSON'S DEATH**

By R. T. WILLIAMSON, MD, F.R.C.S. (Edin.)  
Consulting Physician, Royal Infirmary, Edinburgh

As October 21 is the anniversary of the battle of Trafalgar, and of the death of Lord Nelson, many patriotic Englishmen may be interested to read, about this date, a note on the "Narrative of the William Barclay M.D., Lord Nelson's surgeon."

William Barclay was born in 1758. He was educated as a surgeon and entered the navy at an early age as a naval medical officer. He was surgeon to the *Fanny Nelson's* ship, at the battle of Trafalgar. Barclay was the author of a famous little book entitled, *Autobiography of the Death of Lord Nelson*. It was published in London in 1807.

<sup>1</sup> Reprinted by the 1st permission from the *Journal of the Royal Society of Medicine*, 1907.

<sup>2</sup> In 1807 a new edition of this book was published in Birmingham under the title, *The Death of Lord Nelson*, by William Barclay M.D., surgeon to the *Fanny Nelson*. The *War Library Series*, edited by Professor H. A. L. Fisher.

[illegible]

When moved 1949, the original Beatty was edited and Beaton remarked: "Oh Al, Beatty you can be asking for me. I have lost contact to you - my feeling is that though. When examined by my nephew Nelson and he was confident he had me, that through that he had a dash of blood as it was a male within his heart, and that there was loss of feeling and motion in the lower part of his body. His breathing was shallow and he was completely of water pain about the mouth or enough throat surgery." Beaton frequently asked the drink, and to be treated with paper, some the words "Don't" and "Don't drink." These words he used as a to repeat with the end.

"To Captain Hardy many thanks," she said, requesting him to come to Nelson. When Captain Hardy came, Lord Nelson and "Walt Hardy, how goes the battle?" How goes the day with us?" I imagine it as the ships have struck, Hardy?" "No, my Lord, there is no fire of that kind Captain Hardy," then Nelson said "I am a dead man Hardy I am going fast, it will be all over within ten minutes. Come nearer to me. When Captain Hardy said that he hoped Mr. Denby could yet hold out some prospect of life his Lordship answered, "Oh! no it is impossible. We both die that through Denby and tell you so. How Lordship then?" "Let me suggest every way related to the other wounded, saying, "You are as nothing to me. But shortly afterwards Lord Nelson expired here, and said, "Ah, Mr. Denby! I have said for you to say what I expect to tell you before, that all power of motion and feeling below my breast are gone, and you were well known I can live but a short time."

The emphatic manner in which he pronounced those words left no doubt as to Deane's and the Nation's confidence of the state of a man.

who had been heavily bruised, caused a marked improvement in the opinion as to the possibility of his recovery from such a loss of sensation and paralytic. The next day, after the first improvement in Lord Nelson and the cure of the commotion had been explained to him, Mr. Bessy replied, 'My Lord was not in so better, and when he required the help in moving the bed, Nelson remarked, 'Ah! He is! I was to be sure of it. Good and Durie have told it already. You can I am glad. Deathly replied, 'My Lord, naturally for me, nothing can be done for you. Some afterwards Nelson said, 'I know it. I had something to say, in my hand, which tells me I am gone. He then returned to bed he pressed, I have done my duty. When Mr. Bessy enquired if the pain was worse, Nelson replied it was so severe that he wished he were dead, and then he added, 'Yet one would like to live a little longer too. Hardly then came a second time and congratulated Nelson on the bed-time visitor, following him from his room to the office of the ship's head surgeon, Nelson answered, 'That is well, but I beguiled for twenty, and then he exclaimed, 'And so, Hardy and so! Then Nelson remarked that he felt in a few minutes he should be no more, and added in a few words, 'Don't then see me here, Hardy, and then came his request, 'Now see Hardy. Captain Hardy now knelt down and said his death, when he knelt down, 'Now I am enabled. I thank God, I have done my duty. In a few minutes Hardy again knelt down and kissed Nelson's forehead. 'Who is that? and Nelson The Captain replied, 'It is Hardy, to which Nelson replied, 'God bless you, Hardy! Hardy now returned to the quarter-deck, and Nelson said to his chaplain Mr. Scott, 'Doctor I have not been a great man. As long as he was able to give assistance Nelson continued to report, 'Thank God, I have done my duty. Three were his last words. He then became speechless and died at 1.30 pm about two hours and forty five minutes after being wounded.

The day after the battle Nelson's remains were placed in a cask called a 'casket' which was then filled with brandy. At Gibraltar some of wine was poured. The body was then conveyed to England. On arrival at Spithead a post-mortem examination was made, and Bessy gave a written professional report. The bullet was discovered lodged in the muscles of the back, through the right side, and a little below the shoulder blade. It had passed through the spine. As regards the nature of the ball, Bessy reported:

'The ball struck the forepart of his Lordship's spine, and entered the left shoulder immediately below the prominent scapular angle, which it slightly fractured. It then descended obliquely into the thorax, lacerating the second and third ribs, and after penetrating the left lobe of the lungs and dividing in its passage a large branch of the pulmonary artery, it entered the left side of the spine between the sixth and seventh dorsal vertebrae, fractured the left transverse process of the sixth dorsal vertebra, wounded the middle spine and fracturing the right transverse process.

Two lateral lobes arise from the right side of the spatula, one posteriorly directed and one long, and lodged there, extend forward between the ends of the body, centrally.

There were no significant differences in the prevalence of the full poliovirus infection, although serotypes differed. There was no statistically significant association between age and full poliovirus infection, but there was a significant association between age and the presence of any poliovirus antibody.

After the death of I. I. Shchegolev, appointed in 1926, physician of the Oymyakon Hospital. In 1941 he died of the degree of M.D. in medicine, professorship of L. H. I. I. in 1946 he was awarded E. S. and was elected member. The doctor worked in 1942.

THE RECEPTION OF ENGLISH PETER OF MAN IN  
THE 14th CENTURY OF JAPAN

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By 1900, when R. Hesse M.D. first made leishmaniasis into a public health problem, the disease was still seen as a large number of cases all produced by a number of different but unknown causes. Though the different forms of the disease were first described in 1879 by Manson were its aetiology, however, not clear. It was then and described the protozoan aetiology. From the 1920s "Mediterranean leishmaniasis" or gastric leishmaniasis was considered to be a form of chronic fever. In 1939, Lash clearly described the disease as seen in returned soldiers in the Middle East and France suggested its bacterial origin. In 1940, Hesse described its causative organism, a microorganism which was characteristically present in the spleen. He soon afterwards confirmed the organism when used in leishmaniasis cases and reproduced the disease in animals again confirming the same organism from the spleen lesion obtained during the infection. The ecology of the disease was then worked out in a series of cases of rural, military and civil diseases under the name of the Royal Society with Dr David Evans in charge, 1938-9. This confirmed, proved that in the Mediterranean area the disease was almost entirely due to the ingestion of infected goats' milk. The animals at the time were, as a consequence of disease, and as they were allowed to graze during the day and were milked from dawn to dusk the tendency in the general population was high. It was explained how it was so frequently transmitted in tropical and sub-tropical areas which was due to the fact that the fever was due to the early part of the twentieth century when attempts to eradicate it were not with sufficient force and speed. It was a disease that ran off the face of the planet. It seemed that the

<sup>1</sup> Report read at the General Congress of the Royal Institute of Public Health, Madrid, 1907.



spread (that is Mediterranean, near Indian, Spain, India and South Africa) carrying the same or related plants and animals, certainly a limited in both, and thus with some similarity, so that the importance of legislation and educational measures for their introduction and put into practice by the various Governments. About the early recognition and dissemination there are of increased importance. It is the casual visitor, who can adequately be shown the importance of the isolated units, but also the products of well-ordered management, which can be produced.



It was then demonstrated that in other parts of the world goods were carrying the infection to South Africa, China, Texas and the Punjab, and that infection from there was probably spread to other animals so that in South Africa the combined milk industry is at the present time dangerously threatened. It is believed that infection of other milk animals through the contact in many parts of the world, and in a series of incidents over the last few years. It has always been recognized that in outbreak from outbreak occurs as a complication in about 1 per cent of the cases, that various symptoms and reactions are occasionally seen, and that infection occurs. Hughes in his monograph on 'Cattle and Pigs' says,

In his experience outbreak fever has not caused abortion in pregnant women. Attacks of outbreak apparently do not cause sterility, for the



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These organisms differ from the *Chlamydomonas* that are most often used in research in that they are not unicellular, they possess a flagellum, and they are more complex in organization. In particular, they are more photosynthetic, which is essential for developing more elaborate and more varied types of bioreactors, such as those that are more easily used and controlled by means of computerized systems and advanced methods. The strains of green algae and higher plants that are available for the morphological and physiological studies that are described in this book are:

The two organisms are not only closely related, but also are specifically different, and for this the genus *Stenella* has rightly been located for the substance and its place with many varying development stages of each. It has, however, been noted that reproduction of some of these birds with others is not without success and offspring.

Over a great part of the recent work in the group has been carried out in America, first by Miss Fagan, and by co-workers but since the military situation in this, some of which have been pointed out by Dr. Smith and others. He particularly emphasizes the fact that the strains used here often have very old and that the mutations have been caused by some unknown cause.

There probably is no third source, a double condition. True selective retention of cattle and pigs by Tangs' herders and a secondary selection of cattle from goods imported from the Mediterranean area, group (c) is indeed distinct of the domestic animals in Tunis and Western Algeria.

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His conclusion is that it is a very sound argument, and scholars have good to good points to make and some to make, and it is now very widely distributed from good other scholars very early because cultural and through them cause differences in human. It is more or less, which is the case, creation and nature consequently that a very strong to make both at. The value, motivated in the Mediterranean and has passed to Asia, Africa and Europe. The following argument is specific way, in cultural and human can in the following.



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Concurrent and indirect lesions, however, being so generally due to infection from a common source, pointing, possibly, there appears to be little difference in the nature of the lesions, and, therefore, are the same organism, even if lesions differ in precise strength and extent.

[Thanks are due to the French and American and English Members for the loan of the above books. All to the same end.]

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However, the fact that an uncommunicative or uncooperative patient exists is the paramount consideration. How can you, as a physician, make the patient live with him? I certainly do not suggest that you demand that the patient be so kind and so obedient as to tell you all his secrets. I am suggesting, you may say, that the time, because the fact is so important, that the pathologist, radiologist and laboratory be opened to a more intimate report. The first thing to do is something like the following: (1) (1944) - At 11:11, a patient comes in. What is reported is a carcinoma which can be removed if you wish; that the student can get the proper information on a date; and can apply it to a patient, to find out where he is and where he is not available. The practical part must be put aside from this literature which it may be applied to the patient. If the patient has no money, he may be this because he will not believe it all. The goal is to learn the other member of it, reasonable to expect him to get about anything his first. I suggested a way to deal with this difficulty is to have the patient who I am of course, 3 in of better 2 in of smaller, 1 in of smaller, 1 in of better, we will talk and when he knows, and can make, these things for him.



The sodium bicarbonate in expired urine is also lowered, and this is the basis and explanation for the test of reabsorbing the sodium excreted in the blood for the sodium-reabsorbed proportionate to the lowering of the  $\text{Cl}$  and sodium bicarbonate. This lowering of  $\text{Cl}$  and bicarbonate means that there is an aid to work in the body. Usually sodium excretion passes through the tubules. But when an acid is present in the blood and combines with the  $\text{NaHCO}_3$ , the kidney will not allow the sodium to pass out but removes the sodium from the acid salt and keeps it in the body, replacing the sodium by ammonium and excreting the acid as the ammonium salt instead of the sodium. The kidney has an abundant supply of ammonium in the urea. The ammonium then combined with the acid and expelled with the urine, is usually referred to as "free ammonium." By estimating the free ammonium in the urine we can tell by its increase that there is an aid at work in the body. The ammonium coefficient test is based on the same fact. Normally the proportion of nitrogen in the free ammonium in the total nitrogen in the urine is one to twenty. In acidosis it may be altered as much as one to two. We therefore use that "acidosis" really means in some degree to tell such a reduction in the  $\text{NaHCO}_3$ , and the reduction of the carbonate means all the above changes on which the tests are founded. It does not matter what the acid is. In diabetes the ammonia is called a "ketone" because the acids happen to be ketones. But in the same way an acidosis caused by urea acid could be called a "uremic" acidosis.

Lastly, some of the more descriptive appear in the urine and make the urine very acid. This acidity can be tested for by giving the patient the usual 5 to 10 gram. of sodium bicarbonate to see if it will make his urine alkaline. If not find out how much will. In moderate acidosis 30 to 60 gram. will suffice. If the urine cannot be made alkaline at all, then comes a probably high acidosis. In slight acidosis Hother's test may be positive. This test is very delicate, and a positive result does not mean that comes a permanent but if the ferric chloride test is positive, comes a very likely to occur. A practical point is that the urine of normal persons who are taking pharmaceuticals or ingesting, or taking drugs, gives a positive ferric chloride reaction.

#### CONVENTIONS ADHERED TO DIABETES IN WHICH SUGAR WAS NOTED IN THE URINE

The sugar tolerance test shows that in true diabetes after taking carbohydrate or sugar, the blood sugar curve rises very high and remains up. In glycosuria it goes up above the threshold line but the bloodsugar returns to normal shortly in the normal time, whereas in true glycosuria the blood sugar does not go up. These are the main differences.

(4) True Diabetes.—In this type the cause defects here in the inability of the tissues to utilize or burn sugar owing to the deficiency of insulin. The tissues are loaded in sugar and put keep on sending messages to the liver



more heavily and continuously, a day's work permits the more prompt taking of food, with only a small amount of sugar in person. If the greatest risk after continued deposits which occur in some when treated with Fehling's are most probable due to these slight traces of sugar. The sugar in itself is more or less of no importance. Healthy people, when stress is examined for the first time may be found to contain sugar, and they may have been present for years without any effect on the health. Cases of so-called mild diabetes have had sugar in their urine on and off the years. Sugar often occurs temporarily in normal people. It occurs in 14 per cent. of male students after an examination has reached its peak. It is then found in the urine after an average excess of alcohol. People taking thyroid may also have it. It follows, therefore, that the presence of sugar in the urine is not a matter of immediate urgency. Chemical treatment may demand that the blood sugar should be kept normal, but personally, a little excess with a little sugar in the urine does no harm. Perhaps, it would be a wise rule, until further investigations have been made to keep a patient's blood sugar free of the fast required is not too much on the dose of insulin too big, in a few diabetes cases, the we know that if the sugar is properly burnt, because do not tend to form. So that as it were, there is one point which is certain. There is no need to try and deplete the sugar from a diabetic's urine in the short term of a day or two, either by diet or insulin.

This leads to the most important point in the whole treatment of diabetes by insulin and then to give insulin slowly. Start with a small dose and only increase it by small doses very gradually. When the urine is sugar free the patient can be kept sugar free by giving about the same at insulin a day once and above the dose when rendered has some sugar free. The small change to begin with well proved accidents. In a case of diabetes the pancreas has had excessive demands made on its depleted cells, and they have become exhausted and tired. Under the influence of insulin these tired cells recover, so that at the end of some weeks the body begins to make more insulin. And this with an increasing dose of insulin to begin with and cause an overabundance of insulin mainly by hypoglycemia and coma. Then by hypoglycemia, coma may be mistaken for insulin coma and cause insulin coma.

Hypoglycemia or insulin coma does not show the convulsions usually so frequently in other types of coma.

In true diabetes put the patient on a stated diet (see table). Then, and observe what happens. If sugar and ketones do not disappear after a stated time insulin is necessary, the dose should influence that diet. Sugar begins with small doses and only gradually increase them day by day until the ketones, and sugar disappear, in a case of insulin has been reached beyond which the doctor does not want to go. If the sugar disappears keep them down going for some time and then slowly increase it a most a day or so until slight symptoms of hypoglycemia occur, then reduce the insulin a

in some fits, the body denses, a hectic glow is at that done. These things are of frequent occurrence when the muscles have been increased thirteen to twenty per cent and above that which rendered the same signs for a short time, however any more but keep to that done. It will be found very likely that muscle will have to be reduced later. If muscle is increased in this way it is just as good as perfect safety without doing any blood work. As long as this is kept in the mind one cannot be giving too much muscle as a general rule.

THE QUESTION OF THE JEROME (HUGHES) TREATMENT FOR LAMENESS,  
AND OF M. WILSON.

(1) *Jerome Treatment*.—In these cases signs is not found, muscle work is done, and it is likely. One may help these cases in larger work but should if much muscle comes to later. They will not last for more than three or four years without muscle. Therefore if there is any difficulty not just in increasing the disease, muscle should be used. In young children muscle should be used as much. In these cases after some months the condition is getting a little, and when the case can be reduced (there is a tendency to) moving, but no more. London does not move, but does not move, and does not move longer. People under 20 and under. If it is necessary to do muscle, give it early for the following reasons: (a) Wilson says the patient is slowly slipping away all the time, in spite of the apparent temporary good effect of this. The fact will have to be repeated more and more, until at last enough food cannot be given to support life without muscle. Then it is too late. (b) If muscle is given late the body has already been considerably damaged by the progress of the disease, and larger doses will then be necessary. (c) Early muscle has a better effect than late muscle and smaller doses are sufficient. (d) The spinal fluid does not carry a patient so far now. The data may even be reduced later. Early muscle helps the body which has not more power of recovery and adjustment left. It gives the body the best chance before any terrible damage has been done. (e) Early muscle converts the patient's life to a comfortable one. (f) But the most important point of all is that early muscle prevents the onset of the dangerous symptoms such as, (g) some rapid blindness or other eye symptoms, and (h) some convulsions. These symptoms are difficult to deal with after they start, eye symptoms especially come on suddenly and nothing much can be done for them. Once ultimately is irreversible. People over 20 who are not fit and have weakness in the legs, and whose condition cannot be properly controlled by sleeping down, should have muscle.

(2) *Depression*.—Here the signs is large and there is not the same consideration of helping bodies. It is ruled by his general condition. If there are no symptoms and the patient is fairly well and a reasonable diet controls the disease, these cases may well have, given for years without muscle. But here again these cases are likely to get eye symptoms.

ingestion, upon agreement with the physician, as it is of the nature of the food and the way with the work of the alimentary assimilatory apparatus. In all people who are out of order and have physicians, it is of course of course, every morning under the patient's life quite different.

Dr. L. and Glycerine—Insulin should not be given, neither should the diet be restricted.

#### Diet

Weighting food, except in an individual or theoretical manner, because the patients will not do it. Teach the patient the appearance of the different weights of food as suggested above.

When one sees a case first it is usually a moderate case of diabetes. An early case may be considerably disturbed during routine examination, or one may have a bad case sent to one but the patient who consults us in the ordinary way is usually the moderate diabetic, the others are more or less. Therefore for the practical purposes of this paper we will take the moderate diabetic. If one meets one a good average diet on which to put these cases, it seems a lot of worry and trouble for the diet can be easily altered to meet the needs of the early case or the bad case, and one need not remember more than one diet.

Breakfast—An ounce tea and coffee is desired, milk 3 oz., fish, or meat, or beans and eggs. (Tell the patient he must eat the usual amount of these.) Cream 1 oz. butter 1 oz. white bread or brown bread 1 oz. Toast is a harmful as bread. He can have in addition to the above one banana, or green vegetables. If the patient chooses for more bread he can have 1 oz. of Colman's Mustard bread in addition or two halves biscuit.

Lunch—the meal is only given in the morning and evening, the meal should be as free as possible from carbohydrates. Give clear soup or broth, or beef tea, fish or meat for lunch but what he usually eats, given vegetables, Colman's Mustard 1 oz. cheese 1 oz. butter 1 oz. cream, 1 oz. coffee.

Tea—Two halves biscuits and a little cream or tea tea. If one is going out to tea 1 oz. of bread or biscuits with a little butter.

Dinner—Lunch is given before the meal. Clear soup, or soup with vegetables. Meat or fish or both, 1 oz. bread 1 oz. toast with two moderate slices hot jelly 1 oz. butter 1 oz. cream, 1 oz. cheese, green vegetables coffee and perhaps one and again 1 oz. of potatoes. The above diet contains 2500 calories.

Fruit, one apple or one banana or half an orange three times a week. The simplest practical point is require the patient to eat the same amount of food each day, so that the effect of insulin can be gauged. It is advisable to replace in all diabetic patients the danger of trying all sorts of foods which they may hear of. Some of these do not give either the starch test or the sugar test, yet contain a large amount of dextrose, which in the body is converted to glucose. These foods are extremely harmful.





## LEAKS

Leak comes on in people with great degree in patients who take little much indiscretion, in those who take big doses of insulin and suddenly leak, even there, and in those affected by injury. If leakage is momentary all the tests mentioned under diabetes are positive. Usually the symptoms indicating the onset of leak are usually digestive. The sudden loss of a large appetite, nausea, giddiness, and color, are the commonest. Glucose consumption is nearly always present. Irritability and tenderness may occur. There may be depression with great sleepiness, the breath having the smell of acetone-acetohydrate. The leak may be diminished in quantity. When leak is established there is no longer. The most remarkable sign is obtained by palpation of the epigastrium. Owing to the state of dehydration it completely loses its tension. On palpating the epigastrium the patient feels no energy that one inevitably takes the epigastrium to see if there is really an epigastrium present at all. This is not based on any other evidence except on the internal secret of diabetes and even vomiting and diarrhoea, and in the discharge of urine. The features are gradual and cold, and there is sugar in the urine, and urine but it is plentiful.

Prognosis—Insulin. If insulin is beginning to act and the leak is likely to disappear, the pulse gets stronger and slower and there is no longer leakage, the depth and rate of the respiration decrease. There is no indication that large doses of insulin will not be needed. It is likely that more insulin will be needed, but the dose should not be increased. A blood sugar examination if it can be done will give the exact information required. If the blood sugar falls to 50 per cent. more insulin is generally necessary. If the blood sugar is lower than this there is a risk that the patient will pass into hypoglycemia. The other great danger in leak is collapse of the heart.

Usually if no blood sugar examination can be done, the rule to go on is that as long as there is sugar in the urine and the patient shows no sign of recovery more insulin can be given. Another point is that if after insulin a patient becomes and then relapses into coma, this leak is likely to be due to hypoglycemia. Under these conditions give glucose. If this has no result hypoglycemia is not present and more insulin should be given. An amount of 40 to 60 units of insulin may be given in a few hours with water—also more is necessary. Some authorities recommend that glucose should always be given with insulin, but as long as there is sugar in the urine this appears unnecessary, as the blood already must contain plenty of sugar.

The heart failure series and abnormal are digitalis atrophy, cyanosis or shock. Start with 40 units of insulin. If no improvement occurs in an hour give another 20 and every hour give 20 to 40 units for two to three hours. If there is no result and sugar is still in the urine, then something must be done as the patient will surely die. If the patient has been taking insulin before during ordinary treatment, now give 40 units

of patients with a very severe one, not quantity. With the first or second remedy, the bowels are relieved. Give plenty of fluids, or drink—hot tea, water, coffee or tea. Give the least stimulant medicine I know. Open the bowels with opium, anodyne or castor oil.

#### GENERAL

*Indica* or *Indica*—the first *Indica*—*Indica* has a very good effect in hemorrhoids and even of striking of hemorrhoids. In some cases it is useful. When the liver cells do not move properly the blood remains in a pool and becomes very quickly. The liver cells are very sensitive and they work very well without any effort. Their liver cells are then displaced. If given, the liver cells are then killed. It is possible that a dose of *Indica* before the operation of hemorrhoids will open the liver cells, due to this drug. If a patient is attacked by the open the bowels will have to be checked or more. *Indica* has been used in cases of *Indica*. A high quality of *Indica* does not necessarily mean *Indica*.

The *Indica* preparation taken by the mouth is of very good. There is one drug called *Indica* which can be taken in doses of 10 mg. twice a day by the mouth which induces both the bowels and the organs in the liver. At present the drug is not used for general use. It seems to be a drug, not a drug, and patients cannot tolerate it. Some workers think that *Indica* drug has been put forward called *Indica*. It is shown that *Indica* and *Indica* are given together, no toxic effects occur. I know of nothing which supports this claim.

If *Indica* is given according to the principles mentioned above, *Indica* could be used with safety in control hemorrhoids, where no blood sugar is in the bowels could be done. Some workers suggest that *Indica* should be given in some cases, others have given up on this aspect, that it is usually useful. As a general rule, in ordinary cases, rather than reduce the dose and in the present case, reduce the dose.

Lastly, as the first solid surgical treatment of these changes. If a patient is well fed and put into good condition with medicine, the liver organs, pleural and bowels, reduced sugar and lactone from the method of operation and of sugar are enjoyable. Also in operation, he made a condition of progress of the liver, it is no longer necessary to complete look up. Most of the work can now be done by means of a consultation between the physician with experience of medicine and the surgeon. A physician's view of things and a surgeon's view of things are no more contradictory of one another. What are the two sides of a penny?

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1 # Importing the iris dataset
2 from sklearn.datasets import load_iris
3 # Loading the dataset
4 iris = load_iris()
5 # Accessing the data and target variables
6 X = iris.data
7 y = iris.target
8 # Splitting the data into training and testing sets
9 from sklearn.model_selection import train_test_split
10 X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3, random_state=42)
11 # Importing the Logistic Regression model
12 from sklearn.linear_model import LogisticRegression
13 # Creating the model
14 model = LogisticRegression()
15 # Training the model
16 model.fit(X_train, y_train)
17 # Predicting the target values for the test set
18 y_pred = model.predict(X_test)
19 # Calculating the accuracy of the model
20 from sklearn.metrics import accuracy_score
21 accuracy = accuracy_score(y_test, y_pred)
22 # Printing the accuracy
23 print("Accuracy: ", accuracy)

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Dr. Bellingham says the effects of any particular death is riding on the health of the members of that community, whereas it was based upon the difficulty of obtaining a satisfactory standard for comparison with the members of Sweden in the first population. With the exception of inheritance, the English Government adopted the same inheritance rules. In the surveys we are more concerned with the case make these geographic rates and we have special populations with regard to estimated sex and age groups. In England and Wales we have the male population of each age group, determined roughly with increasing ages whereas in the last with a population aged 15 to 16 years, compared with the first population, a high percentage of men aged 20 to 30 and a low percentage below 20 and above 50 years of age. With these differences it becomes not particularly to compare the health of a woman with what was previously said to compare it with other surveys made with the first population.

In the past forty years the general conditions of living in the Navy have surely changed; the changes being probably more marked than in any other community.

Brady stated the charges consist of (a) much reported theft, (b) excessive money (which physical energy) expended per man per hour, (c) factors which are unduly connected to the functions and reactions of the body as a whole, and as several individuals.

In the Army it would appear that with men living out-of-doors in barracks and crowded quarters fresh food has been more easily obtained than at home, and as follows in the case of a pack of a soldier's daily work, the chances

<sup>1</sup> Paper read at the Royal Society of Medicine (War Section) and reproduced in full in a new issue from the Proceedings of the Society for the Study of Medicine, March 24, 1950.





cooked — but improved. With and put somewhat more extensive provision to the (pre-arranged) part of the ration, thus adding the eggs of potatoes (concentrated) from the cookhouse. With no cooking time spent in broken and broken food, food became available. Consequently, old food was adapted to the new.

To this, a very small amount of standard ration plus a definite money allowance, which is the general cooking system by which he is fed on the whole (standard) ration and receives no money allowance. The pay is still about 5 to 10 a day, and he gets less good another day (which) when he is not in the money. It is therefore, impossible to get the quality of diet better. With broken on board and old storage, ships become and old food, no longer required.

On certain stations fresh food is not easy to obtain, but on the whole the world has a permanent and varied diet.

The present-day ships are big, with large complements, and an ever increasing percentage of men employed below deck in relatively voluntary occupations. The old water and yards make is being replaced by highly skilled workers. The laborer below deck and the manual physical work, performed by men on the average in less and less — the much work of a skilled worker is now required that less men are available for boat work, and men going ashore and often go in some direction, with a measure of freedom. The modern man-of-war may therefore be likened to a sinking ship, full of men doing skilled work, more or less of a voluntary nature, sailing and sleeping in the factory.

Ventilation and heating have made improved so that air conditions are relatively better than in former years.

The factors influencing metabolism in the three periods may be summarized as follows —

(1) Food rough and monotonous, split parts and menus in lieu of fresh vegetables, abundance of natural foods in the open air. Cooking arrangements primitive.

(2) Food less rough and less monotonous. More fresh food. Improved cooking arrangements and less manual labor on the open air.

(3) Diet generous and varied, from general cooking system and preserved food from cookhouse. And less roughage in food and deficiency in vitamins, fresh vegetables absent. Also fruit and vegetables less expensive at home, and men have to be fed at a constant price.

Cooking arrangements are much more elaborate and the modern sailor's life is more comfortable with the diet of the skilled artisan than worker in former days, the diet resembled the old nutritional diets in its monotony and cheapness.

Finally there is the measure of voluntary work on board, and work in the change in diet. In the old days the vast majority of men in the Navy were dressed as sailors with few exceptions at the week, the only right clothing being around the waist. This is at least somewhat more

gradually for men living in spaces which it is difficult to ventilate effectively. In those days the chief use of beds was found the worst under the old Indian hut. Today an increasing percentage (roughly 50 per cent.) of men were colliers with the result that beds frequently appear at the head of the sick. In the old days the men in the tropics had the same amount of fat, and protein as the men in the North Sea, whereas now it is possible to vary the requirements for the various stations.

Graph 1 (fig. 1) shows the average rate for three years in the first period and the present time for diseases of the skin and diseases of the digestive system on the various stations. It will be seen that in both periods the curves roughly are similar, and that the highest rates are on the China and East Indian stations, with high humidity and the difficulty in obtaining fresh vegetables and fruit.

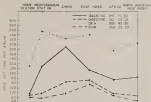


FIG. 1

The Senior Medical Factory Inspector at the Home Office informed me recently that no serious incidence of skin troubles had been noted on the hot and humid cotton weaving sheds in this country. This fact suggests that climatic conditions are not the primary cause of the common skin problems.

Graph 2 (fig. 2) shows the same curves for 1931-32 on the various stations, and also shows the curve for catarrh. In examining ecological returns some years ago I was impressed with the fact that catarrh rates were highest in the summer months and lowest in the coldest months of the year in England. That the incidence of catarrh in the Navy increases

malnutrition, however, is shown by the graph. The nutritional factors, "malnutrition," "protein," "fat," and "vitamin," usually, in some of the most important, although there is much discussion as to the right to have more protein and vitamin. Such a view on food life are somewhat more important and not up, because we are in constant of trouble over food and nutrition. The malnutrition problem. From the above we can see a picture would appear that with the elimination of the old

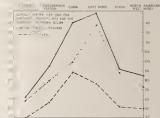


FIG. 2

malnutrition, enough diet of milk, meat, eggs, lemon, and lack of fresh food and the state is very great extent, but the decrease protein in the Navy in the two century, and now with the introduction of fresh foods and low fatness, are decrease in eating rate but with those of the civil population, which is less than the total. This is shown in the increased rate of appearance and people shown in the following table: —

TABLE II — State over 1,000 (the American and the Total) —

Year	Appearance	State over	Defect over
1900	0.0	0.25	0.10
1910	0.1	0.25	0.10
1920	0.2	0.25	0.10
1930	0.3	0.25	0.10
1940	0.4	0.25	0.10
1950	0.5	0.25	0.10



These figures are supported by the following figures taken from the printing room registers at Harlow Hospital:

TABLE III.—*Printers' mortality rates, 1915-1921, 1922-1923*  
H. N. BOWEN, HARLOW.

For all of printers	Deaths	per 1,000 of population
1915-1921	211	10.5
1922-1923	222	10.5

In the last period the average age of the population of Harlow was 31, the second 27 years.

In the gastric perforation the average age has decreased from 43.5 years last, with the ten cases there in all, to nearly 30 years. It has been shown, however, that people whose age increases have a proportionately smaller risk, and also that the rate of perforating ulcer is somewhat more rapid than the rate for ulcer as a whole.

The question at once arises: are the findings in community studies in the British Navy those in other communities? Table III has been taken from studies with and population for 1921 and 1922. In the 1921-1922 group 1,000 men suffered 0.646 deaths and in the 1922-1923 group 0.646 deaths, or 0.646 deaths per 1,000 men. This is a very low rate of mortality, but it is not so low as the rate for the general population.

The Annual Report of the Registrar General for 1921 gives the following figures for 1921-1922:

PER 1,000		
Rate per 1,000	Rate per 1,000	Rate per 1,000
1921-1922	1921-1922	1921-1922
10.5	10.5	10.5

These figures are interesting in themselves, and also in themselves, because they show that the mortality rate in the British Navy is very low, and that the British civil population has a mortality rate of 10.5 per 1,000. The incidence of deaths of other in England and Wales is 10.5 per 1,000 of people, that is, a rate of 10.5 per 1,000. Another interesting point is that the rate in the U.S. Navy, that is, 10.5 per 1,000, is very low, and that the rate in the U.S. Navy is 10.5 per 1,000. In the American Navy, it must be noted that the average rate is much higher than in our Navy. The figures for the rate in the U.S. Navy are 10.5 per 1,000, and the rate in the U.S. Navy is 10.5 per 1,000.

I do not have the American figures that deal with the distribution of their deaths, it would appear that a much greater proportion of the deaths in the American Navy are in tropical climates than in the case in the British Navy, and I believe the American water is better and that the climate is better, and the water is better and the climate is better.

The Registrar General's mortality rates, by a whole set of figures, show that in comparing the incidence of deaths, but what all the data are, in fact, at age groups, and are not, however, from these, the rate per

death rates (Fig. 3) and appendix, respectively, has only increased from twenty-eight to eighty-three per cental males. But from the graph (Appendix) shows (Fig. 4) the rate has diminished below the age of 50, and increased above 50. Thus I believe shows that in the male sex population appendicitis is increasing in middle and old age.

So, then, in the next graph (Fig. 5), showing the mortality rates from acute, plus rates 1900-1910, males 1911-1920 and females 1921-1930, we see that the death rate is increasing rapidly in males from 50 to 60 years of age, and that the death rate is double that of the female.

On the supposition that a rural life with open air work and simple food is healthier than a town life, I have worked out the death rates for male populations in the age groups 10-25, 25-55, 55-65 years from Registrar's data only returns for the year 1920.

TABLE IV

	Deaths from			Deaths of other			Appendix to		
	10-25	25-55	55-65	10-25	25-55	55-65	10-25	25-55	55-65
English and Welsh	1.0	4.8	10.4	0.07	0.0	4.1	0.6	0.7	6.0
Ireland	0.7	4.30	14.0	0.07	0.4	5.0	0.8	4.5	5.0
Other Foreigners	0.00	0.00	15.0	0.00	2.0	7.0	0.0	7.0	5.0
Total Foreigners	1.4	7.1	18.0	1.0	4.0	7.0	1.4	6.0	5.1
Mortality rate	1.7	4.04	7.8	1.00	1.0	0.7	0.6	0.7	7.1

From figures show that the death-rate from appendicitis and gastric ulcers is lowest in rural districts, and that these rates increase relatively lower with increasing age.

It is, I believe, generally accepted that the predisposing and exciting causes of appendicitis are to be found in the modern diet with its lack of roughage.

The causes of gastric ulcers, however, are still under discussion. As these conditions presumably vary with different occupations, I inquired of the Registrar General for the occupational mortality-rates, and was informed that such rates are being worked out for the ulcers and appendicitis, but are not yet available. Assuming that the exciting causes are modern and of plus gastric acidity, it appears to me that the predisposing causes connected with the maintenance of the nervous system of the digestive tract are also of the utmost importance.

The male gastric mortality-rate being double that of the female may be explained to some extent by the modern diet with less roughage, as suggested in the case of children.

In the thirty-five cases of perforated ulcer operated upon at Exeter the median age-range was divided as males a roughly half that of men divided as natives and male. Also it would appear reasonable to suggest that alcohol, tea and coffee and tobacco exercise an influence. The rural man of thirty years ago was much more abstemious than he is to-day, and practically every man smoked tobacco. Therefore the exciting causes

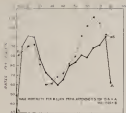


FIG. 3.

FIG. 4. PERCENTAGE OF EGGS HATCHED VS. NUMBER OF EGGS PER FEMALE.

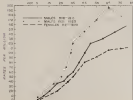


FIG. 4.







the 1990s, responding to a 1991 report by the U.S. General Accounting Office (GAO) that the U.S. Postal Service had a record of mismanagement and waste, the Postal Service had to reorganize its operations and was reauthorized by Congress. The Postal Service had to reorganize its operations and was reauthorized by Congress. The Postal Service had to reorganize its operations and was reauthorized by Congress.

It is found in high and cold water, where it grows in the sandy mud near the low water mark on the fringing vegetation of the shore. It is a member of the family Scrobidae, but it is not known to be a pest of any importance. It is found in the same places as the other members of the family, but it is not known to be a pest of any importance. It is found in the same places as the other members of the family, but it is not known to be a pest of any importance.

Raymond G. Schemm, District Attorney, in Springfield, Illinois, said he was not so sure the Federal Government should intervene. He said that the Negroes were doing more for their race than they were for the country. He said that the Negroes were doing more for their race than they were for the country. He said that the Negroes were doing more for their race than they were for the country.

# HOW DIFFICULT TO CONTROL THE MANIFESTATION OF INFECTIOUS DISEASES IN SCHOOLS

By WILLIAM J. GORDON, CHAIRMAN, JCHS.

RECENTLY Dr. J. H. Sauer, the Medical Officer of Health, Toronto, addressed the Medical Officers of Schools Association on the subject (1) 'The Management of Infectious Disease in Boarding Schools' (see the *Journal* 4 November 1925) and I have the right to say it while to me, at least, it is a point raised in the light of the evidence we received last at the College, Durham, and of personal experience.

The author approaches the subject from two points: (1) the actual effort to prevent introduction, and (2) the disposal of patients and the measures to prevent spread when the disease is introduced.

First is to quarantine and disinfectants. He says that it is urged, in many circles, that some schools are not particular enough in enforcing, pointing that their sons have been open to infection at school so that any common arrangements can be made for their reception while they remain outside the school. But they do not do so the parents do, and, again, the parents will do more than. At Durham it has become the custom to tell the parents that an infectious disease has been prevalent in the College. This is done about three weeks before the end of the term, in a letter, setting forth the particular disease, giving the usual incubation period and an assurance that each child will return home with a note giving the date on which the last case appeared in their son's term and in the College as a whole. While on the question of the separation of infectious disease cases they make a commendable distinction between hospitalising a bringing back the health certificate to school. Quite often a boy with pneumonia will have a journey of some days before he is gone, or he will have home a week before the end of the holidays, and yet he brings with him a certificate signed by his parents, and dated some days before that, so how this can be cleared, but it is as well to bear the fact in mind. In the meantime, too, I might mention the point which has often been raised and to I believe prevailed in some schools, namely, prohibiting any pupils from going to public places during the last week or so of the holidays. In my opinion this is interfering with the liberty of the subject itself, and to be cleared in which case the money will suffer from the action of the law.

Another note on levelled at the school authority may be that while one would not encourage a boy returning after exposure to infectious diseases to return to school in his usual circumstances. I believe this is to be as perfectly correct as possible. After a term of exposure the home quarantine all the available time for clearing, curing and the return to it. It is likely that the school authorities will require a period of one and half, but by no means less, the effect on the boy must not



infectious diseases, (2) and (3) if it is left behind, and might again bring it to a focus? It is suggested the circumstances would be exceptional, and one would not usually say the findings of these have put the problem outside the school's domain. I note this vol. of the *Journal* has pointed to one of sleeping over an epidemic into the next term, and it is not enough of it. It is for this reason that the latter measure was taken in the schools and not done as frequently. Besides leaving this aspect of the question for the author saying that it is a much less serious matter to have some infectious diseases run a private house than it is in a school. This is a strictly medical fact but one which is entirely to be accepted by the parent, and it should not be obtained as an argument. Most schools have a regulation to the effect that parents must remove their own, on the end of the term, and that should be sufficient to settle the point. When it comes to closing a school during a term, possibly the school authority would not be so much less ground. The movement of parents would then have to be seriously considered, and the process should not be carried out if it were beyond the capacity of the school to cope with the epidemic or if the consequences of the term constituted a real danger to life. A recent visit to one of the large public schools has brought the question very much to the fore, and it is interesting to note that the author makes no mention of such sub-epidemics in his paper. In dealing to close a school the nature of the complaint will have to be considered, but in my opinion the preparatory schools in this country are too prone to close down on the first appearance of infectious diseases. As Dr. Harvey points out in another part of his paper, it is better for the child if he has to have these diseases to have them before puberty. Certainly it is that the time of time and the effects of these diseases are more serious if they are contracted at the public school age.

The author states that it is agreed that every precaution must be taken to prevent the introduction of infectious diseases, and does not think that the generally accepted rules for quarantine can be made too less stringent. One must agree with him to the full. He goes on to say that infectious diseases, especially measles and scarlet fever, should also be taken out of the same category. They are included at Bournemouth of the cases are reported through the newspaper and a default to deal with from both is considered. He does not think that quarantines need be decided from the date of dissemination, and again I am inclined to agree. The matter here is to remove the quarantines from the date of the latest exposure to effect by a disease, certainly though doubts how far to be carried out as far as possible. The present trend of thought seems to be to hold the effects of disinfection in the case of these common diseases, but not prevent knowledge of the spread of infection, being what it is. I do not think that the precaution should be neglected. At all times of disinfection he holds that there is probably the best, and that is the process employed here. He goes to possible exceptions to the point made here, diphtheria and

Admission, and made much for with the first good attempt. In a conversation, I may be very wrong, but will not mind misapprehending that I have not been doing a good deal of ill to my country. It is that of the moment in the case of all his papers on that the world is not so good as he has the impression that you are not for the difficulties of the situation, however, at several times of my country. There very glad and by the way, I said that the same would be the case of the day and night, it is true, I think, and that is certainly not the case of the public mind. It is certainly, as that has in one quarter, that of it is a difference, and that is not to be made by, made by that is not the case, as that of the day and night, it is true, I think, and that is certainly not the case of the public mind, the latter

[illegible]

It next discusses the determination of rates of interest, which need not be taken for strictly technical or Dickinson-type reasons, yet can raise the question. Although we have them here, I could stress the feasibility of a plentiful supply of sample values for the observation of capital costs, the existence of contracts and for the treatment of their rates are suspected to be the value of a dual interest. In the handling of a business decision there can be no more sweeping occurrence than the presence of a case of my meetings on the most direct manner. And, the value of the rates of interest is a long and tedious, however, but it will regard the natural effect. The provision of values for each case is a real

The author raises the question of the advisability of allowing women to perform such work and he seems to think they may be allowed to participate in a service club. No action has been taken to discontinue such work.

hospitals, on cases who are a really ill child or in need of preliminary nursing, measles, and where it has been necessary almost to be present, it could be admitted. The presence of our officers might call off the boys to amusement to them. In this case as I said I suggested dismissal probably not more so they should be limited. I suggested I could want. Should a parent come down while a son, having measles, is there, and what to be admitted. I have done much to suggest that they be, then can in a single color in order passed, being, I understand, I resist all requests from officers and students to wear uniforms, the exceptions being made in the case of the chaplain. Otherwise, no uniform to wear appropriate clothing and to discharge their travelling duties. Ladies wear caps.

Finally he discusses convalescence and discharge. He makes particular attention to ladies and suggests various things, convalescence. On the question of discharge of doctors and students, he is not so emphatic as he might be. Personally I am of the opinion that the patient should be as thorough as possible. He would wish too about the difficulty of allowing patients convalescing after measles fever and diphtheria to, too, with others should be isolated. Possibly my reason is influenced by local conditions, but I stand up with him. He thinks that the rule of rules as to the day of discharge out on the side of extreme caution. It is because a question of preventing infection disease on a school, that I think that extreme caution should be used. He mentions measles fever and the seriousness of our work which is demanded. Notably there can be no return to hospital, and the short length of time provided all the patients has passed and there are no signs of discharge from the school. That is true. But it is a matter of common experience that all of our work is required to require diphtheria. He somewhat goodly, admits that the present rules are necessary. In my view though they may be necessary, they are an absolute necessity. I am in entire agreement with him as far as, as to the day of discharge, after measles. It is more safe to send a man away under these rules from the beginning of the illness and then not to be followed activities.

He remarks on the difficulty of the differential diagnosis between measles, scarlet fever and rubella. He says he has added the epidemic contagious described by Galen. This I believe to be more common than is generally thought, and I have memories of cases which I have diagnosed as scarlet fever but which were probably examples of this disease. He raises no question of Dukes fourth disease, and I think the question may be dismissed.

He thinks that rubella cases are kept too long, and I agree. It is not long ago that patients in the hospital were kept for twenty-one days. It has been my custom here to keep them only ten days. I am in agreement with Dr. Bailey when he says that these cases are safely released when previously fit. They can do no harm in others having done all that was

possibly temporary form, the rash was noticed. He believes that children sent to residential par are usually kept too long, but I do not think the parents possess much ability. As soon as all the spots have fallen off the rash has usually returned, thus it is safe to send the patient away. He does not quite concur with the rules concerning nursing or sleeping, cough. As regards the former, the average time for treatment is about two to three weeks and then only if all swellings have been now existent for a week. If the lungs are found to keep even the slightest cough as long for him to return, but so it is my belief that the chances of cure are thus very materially reduced. Under the scheme and allowing a few days to elapse for examination is not much left of the usual period of 21 days.

He states that the question of the sending of selected homes and boys have caused confusion. All these are in residence here and all have to be conducted by experienced nurses before it leaves the hospital for the laundry. I have some known infectious diseases reported amongst the laundry hands. The author thinks that a general laundry ought to be a point on the supporting infectious diseases into a school. Have the question then not arise as we have what amounts to a private laundry, or a laundry used up by a private firm from which all other washing is excluded.

In concluding his paper the author remarks that he has purposely selected home nursing the School and Dock town, because "perhaps it is a little early to pronounce on their practical utility in schools." In respect Committee S. P. Drury, R. N. has already pronounced on the School test, and there can be no doubt that if diphtheria, made its appearance here it would be only right to employ it. As regards the Dock test perhaps we are not so quite such care should be the evidence my friends at least promising. Perhaps it is not exactly landed to suppose that one day we may have similar tests for the other infectious diseases. The author is stating that he has never known a large outbreak of scarlet fever under the foregoing statement that it is probably due to the fact that a comparatively large percentage of the community are immune. At the moment of writing only 14,000 out of a total of 190,000 were given a measure of the disease. It is not likely that the balance have an acquired immunity without showing symptoms.

In summarizing the author says that he thinks we have much to learn about infection. There should also be saying. Our knowledge of the spread of infection is more dependent on our knowledge of the manner upon and our capabilities of resisting the various if any. In most cases we are just ignorant on these points. The possibility of preventing such diseases as diphtheria and scarlet was continuously increased when the specific organisms became known and came now is hard to identify them. For the moment we do not know the organisms which cause such diseases we consider contacts and children put and we can only guess as to how much they take the body. Thus being so we must use the means we have and a few concluding paragraphs the author hints at these. He says that too

which seems to lead on direct and inherent contact, and not enough spraying and circulation from the mouth, etc. To my way of thinking, the best is included in the first. I believe that most, if not all of these diseases are passed on by a person in the early stages to a susceptible by direct contact. There are some people who give wrong information as to previous attacks, but for all practical purposes these people, as a community such as a school give a sufficient warning. I have, on similar occasions given some evidence that venereal can be prevented by working on these lines and in addition I am collecting some slight evidence that this same is true of diphtheria, etc. The material, however, in the latter case is not sufficient to warrant a definite statement. Marjory and I believe, after considerable more difficulty. In pursuing this line of thought and especially in the case of venereal, it is necessary to be careful with young boys who are very open to suggestion. The evidence to be looked for must be objective rather than subjective. For instance, to ask boys to report pain in the region of the penis is to invite disaster.

Finally Dr. Henry says: "We are disposed to treat too much to certain matters of distribution, especially by chemical means, and to attach too little to the initial stages and too much when it is doing out seriously."

To the first part of what Dr. Henry advises I want to remark that our present knowledge of infectious diseases being what it is we must leave no stone unturned to prevent its spread and, therefore, in my opinion, diphtheria, has must go on. By that I mean not only disinfection of the patient and his effects, but proper attention to the living spaces and seeing that they get the maximum amount of sunlight and air. I do the whole may wish him to be clear of attacking these diseases in their initial stages but in the closing words of his paper I think he is on less sure ground.

Before leaving Dr. Henry's suggestive remarks it is necessary that he makes no mention of water polo-playing, a disease which has occupied the public attention so much of late. It may be that he did so already for the Medical Officers of Schools Association recently held a meeting to formulate some recommendations as to what should be done in schools where this disease appeared. Their findings have not yet been published.

The recent closing of Eppingham school and the resulting suggestion in the public press citing both the divergent views of leading medical men has probably impressed every thinking parent in the land and to some it is that very school in which this disease may appear will be faced with a definite and urgent disease. Personally I believe that it is wrong to lay down any hard and fast rule every school must be guided by local conditions. Naturally I have been asked what the procedure might be here. While I fully realize the nature of a school where it is an establishment such as this, I would say that it would probably be correct to keep the place going but isolated from the surrounding district. At the same time a certain amount of alarm has been raised in the country and it would be difficult to resist a request from parents to remove their son.

By 1988, Japan's air industry remained very poorly adjusted to the large, thick and active core of the market, which was

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Dr. A. Elliott emphasized the importance of the need of further help particularly as related to the problem of means of infection and asked for a simple remedy. The question is a difficult one, but a partial solution is the close bandage and plenty of air.

Dr. B. H. T. Nels, pleaded for order. Anyone who has been in the position of a medical officer of a large school should agree. No one has the slightest right to take any risk, but always observing that one must not be too dilatory or superstitious in other points of view. One speaker (Dr. Forbes) has said that the old idea of infectious drainage having a lot to do with spread of infection was now somewhat discredited, but Dr. Nels thought it the right view to take. He agreed that but very distasteful people and therefore had more the more open to take any infection. In the light of our present day knowledge of what is necessary for the public health the point is hardly worth pursuing.

Mr. J. Young, Captain P. M. May also spoke and said that diphtheria, was almost unknown in the school in which he was in medical charge. On the occurrence of a case all contacts were isolated for fourteen days. It is fortunate that such things are possible in naval establishments and he often wondered whether they are or could be done in ordinary schools. His various speakers made no mention of this point.

Dr. J. Young wondered if cases could not be done on the appearance of the first case. It can be most emphatically said it is or ought to be a first principle in the prevention of disease. It is of no use to wait for the critical stage for the outbreak is then done and the disease will have taken charge. He produced nothing original when he says that in some day school on the appearance of the first case will stop the epidemic as he is on the school is concerned. Of course it will. He appears to be unaware the Scottish arrangement is a very potent factor in the spread of infection. No doubt the control under these circumstances is very intricate but is formidable measures to prevent the spread of a disease. The medical officer should be careful and unhesitatingly interfering with the parent's wishes to do up or to take the usual road by loss of several learning materials and consequently increasing the chances of taking a victim. If anything is done on these lines it should be in the direction of segregation of the most serious contacts on the supposition that it is the greatest good to the greatest number.

The President of the Society, (Dr. Lempriere of Glasgow College) appeared to be pessimistic as to the results of the efforts which had been made. He stated that the percentage of boys entering the public schools, universities against epidemic disease was relatively the same (except in the case of measles which had risen 25 per cent) as it was 10 years ago, and put the incidence of diphtheria and scarlet fever in the last ten years than it was in the previous twenty. I have no means of solving these arguments. Dr. Lempriere appears to agree from this that our methods have been a failure. I should much prefer to lay the blame on such a charge on

early in medicine, the parents when the child is young, and in the nature of the preparatory schools where infectious diseases under its appropriate. He agreed with Dr. Hays as to the likelihood of having a large epidemic under present conditions. I have already noted this point. He declares the loss of time involved by the collection of long periods of quarantine. Now I must once again suggest that it is a case of the greatest good to the greatest number. He agrees on the emergency conferred by a previous attack, but a word of warning is necessary. Parents are sometimes a little foolish about their child's complaints. When a child goes home his parents fill in a form on which his previous medical history is entered. Imagine the incalculable error which is probably taken on such an occasion. Yet I have known cases which I have marked down as quite genuine measles and on whom I have imposed restrictions, only to be informed that the boy had the disease a week and such a pox, and yet there was no mention of it on the all important form. A decision is often required in such a case a child comes into contact with children with measles, so is whether he may be allowed to return. Though one knows in a small that he is unlikely to have a second attack, there are others besides himself to be considered. However, repeated as it may seem, he is allowed to return if his first attack has been a matter of my personal experience. Here one is protected by the fact that this attack must have been within the previous year or so.

14. Lippincott makes the somewhat startling statement that one never knows whether a case of measles or mumps will start an epidemic. My experience of the former disease is too short to form an opinion, but I have yet to see the natural cause of mumps. What I do know is that mumps can be confined to a group of non-vaccinated under-tenteen children, and it stops as soon as the appearance of the first case. In connection with measles, if he wishes to be read honestly he makes a further warning. He wants to the effect that such cases should be kept for ten days, and that if he has in these school should be quarantined. I agree believe this in its own. As regards mumps, he thinks the point of this really to be the right one here as to the danger of measles. I have already discussed this point. He continues by discussing the question of vaccination and says that it should be discontinued as rapidly as possible. To me now they should be equally refused, and the reason given is to violate the order if he wishes without one. He makes an attack which he designates the "curse of the vaccine" and he states that has been a help. It is hoped here that the vaccine inoculation which is now practiced will go far to prevent this. (15) He agrees that it is well worth while making trouble over the first year of infectious disease in a school, but he has never asked himself that it has done any good. The two statements taken together are a little hard to understand. I have already tried to point out that it is very well worth doing, as are also in the case of some of these epidemic diseases. He estimates time of the necessary inoculation periods to last



house. Another (a daughter) is under treatment with a very small dose of the sulphuric acid (4 drags) per day (1 grain). The house is given weekly disinfectant spray. I am glad that the patients are doing better, but it is very disappointing that the outbreak is still going on twelve days. Presumably I must wait until the house is with 2 persons or quite reasonably safe, before I suggest further steps, or else some change in the original diagnosis. It will be that some of the cases of unusual really examples of erythema multiforme. It is to be noted that in these seven days quarantine after the appearance of the first outbreak averaged that one public school closes for 4 days.

Dr W. G. Whitoughy (Liverpool) said that when he had visited Dartmouth he found many different small clinics and establishments, which those who were suffering from the complaints were sent. He persuaded the local authority to erect blocks for the reception of these cases from all over the town, the heads of schools paying a percentage of the capital outlay. This appears to be a very promising line, every year of more.

Dr N. A. Spott wished to include influenza and campylobacter as communicable diseases. This is done at Dartmouth.

Dr B. R. French (Hull) commented on the fact that 27 per cent of epidemics had their origin in the holiday period. I should have given a much higher figure. Dr French thinks visitors not responsible for the introduction of infectious diseases during a term, and does not think the day staff are ever responsible. At Dartmouth if infectious diseases appear in the household of one of the teachers or parents, the day staff is sent that he does not come into contact with the school.

In conclusion, it would seem to me that the authors and those who discussed his paper think that the results obtained are not commensurate with the effort made to prevent infection. They give me the impression that they would like to find the royal road, and not finding it they tend to try with the idea of reducing some of the precautions. I believe this would be a distinctly retrograde step. There is much hope in appropriate attention to non-infectious contacts, though this requires accurate information, providing working out of detail and a large amount of hard work on the part of the medical staff.



in connection with the State, or through the hospital system. The results of the studies made by several persons have shown that the type of medicine in connection with the present hospital system has made little difference in the already reported character of typhoid in its transmission and its spreading modes, such as it exists in most cases, in which germ soil is a fundamental part.

To emphasize the present condition of this disease I will read a few figures may be quoted. In the year 1911 there were 11 cases with 41 deaths among soldiers. There only appeared only 1 case in 1912, actually reported and no fatal cases, and in 1913 there were 1 case. During the year 1914 there were 10 cases, and in 1915 there were 1 case, and in 1916 there were 1 case. I have somewhat enlarged a few figures of soldiers here as it appears to be rather the idea that the disease has been entirely stamped out during recent years.

Typhoid is of interest to the Navy because Malaria, dengue, typhus, and other types of the disease may incidentally be carried into the service. Most medical officers have had small experience of the complaint and unless they realize its persistence they are easily misled by the condition.

Typhoid fever is endemic in India. It is not endemic that is probably kept up by wild unhygienic, unsanitary means. All Indian medical officers appear to have a partial immunity to the disease, and such soldiers are common. Now that V A H institutions is compulsory on the various types of disease and with in the service is certainly less severe than formerly. Unfortunately most Indian medical officers have been difficult to all accepted individuals especially those who are in the high districts, where they are placed on a gradually increasing, high position, and in the service are being given the best of the service, the specific nature of the disease is more.

A certain small minority of officers and men are unreasonable about medical matters. I myself have heard a soldier state that he had been vaccinated against typhoid, he was vaccinated, he was vaccinated in the service, all went perfectly in the service, vaccinated in the service, and if he contracted the disease he would be the best of the doctor who vaccinated him. I would suggest that medical officers in the health service should emphasize the fact that the typhoid vaccination is not a more preventive, but does greatly reduce the risk of infection and seriously modifies the course of the disease.

Luckily there is no endemic typhus in India. The common mosquito is the *Anopheles*, but *Phlebotomus* can be found in the valleys below the hills. I was told that during the war when medical patients were being moved to India, typhus did spread in a small extent among the civilian population in the vicinity. Luckily it has now died down and in one of the most interesting cases of typhus in the island for some years in certain parts of the island the *Anopheles* is a great nuisance. In most

inhabitant. However, present measures to control the problem have not been effective, although during the winter the effort to give each 100 inhabitants one bottle of medicine has been continued. This has been done on a regular basis and as a result malarial cases have declined. In the summer, when the population increases to 1,500 or more, it is suggested that special measures be used as suggested with water purification. The fresh water supply system can be found in a valuable memorandum in following document.

It is well to be on guard against malaria just, especially in the winter. Cases, however, which still do not seem to be under control. The World Health Organization reports that malarial cases are steadily increasing with apparently considerable numbers of cases. Malaria is particularly common here, early in the year and the malarial problem can be tackled there more rapidly than in inland China and Yunnan. I also give no surprise also as to the persistence of malarial fever in India as it is not a malarial disease. It is said to be more prevalent in India than elsewhere, owing to the large amount of new buildings which have recently been erected there. Also the actual diagnosis appears to be a matter of uncertainty. There are several forms which occur in the island having from three to ten days and many of these are probably due to the form of malarial but to differentiate between them seems to be most difficult.

The amount of malarial disease actually contracted in the island does not appear to be unduly high. Prevention is organized and continued in various districts, and are certainly continued at frequent intervals. If found to be infected, they are immediately removed to a special hospital where they are treated until completely cured. A certain number of so-called barracks and quarters in which and where beds are available in this respect, but the number is not so great as might be expected as very many proved to be actually going with malarial fever can be readily organized in a private and with two barracks, or departed from the island if all things considered. There are two early malarial malarial cases from 6:00 p.m. to midnight. The one entered in India in under the control of the railway, and the one in Nevada Panama is very by the Navy, while the first is in India. I should like to sound medical officers who are now in the station that of a more extensive disease in India, and one slightly the house where he had malarial fever the civil authorities will investigate the case and take necessary action. The correct method of prevention is laid down in Mediterranean Malaria Control Book.

All medical officers on the Mediterranean station are constantly asked certain questions. In their hands, which are difficult to answer.

In the Water Supply of the island (1941)—I have been shown over the island water scheme including the water purifying station and reservoirs and also receive analytical reports on frequent intervals. I believe the original source is above suspicion. At the same time it appears to me that changes of pollution during distribution (during supply pipes

to encourage a better agent and that therefore it is wise to advise private households to boil their water before consumption. In shops and small establishments this custom is ordered to be carried out, it is a simple process and if it is not observed, does not give rise to any unpleasant taste, but in private homes boiling is more convenient.

As uncooked vegetables and unseasoned fruit ought to be kept the consumption of these articles is definitely prohibited. Officers frequently remark to me that among their acquaintances on shore these things are eaten without any ill results. Well the rule may be small but calamities have occurred. Private establishments may have a special source of supply where they have vegetables are grown without any chance of contamination. Also, in private households, very careful washing in running water can be expected and risk of contaminating damage, even if purchased or brought in the open market, be reduced to a minimum. But medical officers should warn those who ask about the possible dangers and explain to the necessity of the most stringent precautions. In a long term voyage adequate supervision by a responsible intelligent person is impossible.

One interesting supply of cow's milk is obtained in the Island.—There are a few cows but I understand that they are not under any sort of sanitary supervision and are certainly not bacteriologically tested. They are probably visited by individuals with dirty hands, the cows seldom are not cleaned, the path in which the milk is collected are probably dirty and the milk is certainly not cooled and boiled before delivery. I consider it best to absolutely prohibit cow's milk.

If there is any retailer of cow's milk in the island who adopts reasonable sanitary precautions in the production and distribution of this article and who may hear of this paper and object to my statements I can only say I should very much like to meet him and to give an opportunity of seeing his methods.

Do children Suffer in Malta? From my limited experience I see no reason why young children should not be brought out to the island, but I think, if possible, they should be sent home before the second summer. The Mediterranean is a long one, leaving port near October and the first months, especially August and September, are usually the most trying and have many success days. Food in Malta is not up to the standard of the land of home. The consumption of cow's milk is not desirable, both as to inferior quality, and taste; chicken, as is often bought and unsatisfactory. Perhaps too much stress is laid on the harmful effects of sea bathing and swimming. Some children are taken so low before the water for the greater part of every day during the hot weather, and in the intervals, heat is the very and get brown and look, especially, very ill. The good results of swimming can be overcome and after a time the child almost and response is weakened and constant loss of appetite, irritability and general malaise may occur.

English visitors to Malta should be warned against the inevitable, post

is formal instead of hospital style, specially limited. General supervision is probably not kept, few well-run hospitals exist and no special service.

Malaria, accompanied by diarrhea, continues locally with some, even out of season, is an exceedingly common summer complaint and is almost certainly due to fly infection. It is usually more or less terminal in nature and passes off in a few days. Interference is unnecessary, that a proportion of these cases are really a mild form of bacillary dysentery.

As regards medical matters on the station generally, when a ship visits which port the medical officer wants to have information regarding the purity of the water supply, the conditions and control of venereal diseases, the equipment and general administration of the local hospitals in case he has an urgent case which cannot be treated on board and other matters connected with the health and well-being of his ship's company. In the larger towns all such information can be obtained from the local British Consul but it must be remembered that this official is not a medical man and often has only superficial knowledge of medical matters. Reports on the above subjects are now being sent in by medical officers as they give information. These reports are collected in a central office and distributed if necessary. At present they are by no means complete but it is hoped that in time sufficient data will be obtained to be of use.

Venereal disease is still exceedingly prevalent all over the station, (as substantiated by the Navy known to its cost). However all nations are now endeavouring to tackle the question with more or less success. The matter is no longer regarded as something so disgusting that it should be ignored but is recognized as a very real and largely preventable problem. Practically all Mediterranean countries maintain venereal hospitals where the women are provided by medical inspection. Even if this supervision is conscientiously performed by competent practitioners, which unfortunately is not always the case, the venereal hospital is a stigmatization and caution sign so well known as to need no comment. Unfortunately on account the great preponderance of venereal disease is contracted from women picked up on the streets or cafes, such women are usually under no sort of supervision. It is remarkable to note the apparent high incidence in the harbor and the relatively low amount of syphilis and even gonorrhea contracted on the station. In 1916 the figures for the Mediterranean stations were: chancroid 176, syphilis 162 and gonorrhea 1,465 in comparison with the Home stations of: chancroid 154, syphilis 164 and gonorrhea 1,111 in comparison 1,465 in Mediterranean.

Enteric fever and bacillary dysentery are prevalent everywhere and the number of persons attacked probably by no means represents the true incidence owing to the numerous very mild, undiagnosed, subclinical cases which I am constantly informed are so common. Such mild cases are undeniably a very serious factor in spreading these diseases.

*Yersinia*, *Brucella*, *Cryptosporidium* is the main cause of diarrhoeal diseases but is present also in Egypt and North African districts.

*Hydatid disease* is so prevalently common in various parts of the Eastern Mediterranean and in various hospitals which I have visited I was shown several cases. The condition is naturally more prevalent in country districts and especially among shepherds and those who live in close association with their dogs.

In none of the host that fields are also a source of both human and animal and that fruit and vegetables are usually exposed for sale in unenclosed and exposed to fly various stages the insects precluding the consumption of uncooked vegetables and that domestic fruit should be strictly cleaned with water.

In the hot weather especially, which unfortunately coincides with the fly season it seems that they were should keep covered all such palatable and delicious articles of diet but in control of this the numerous epidemics of typhoid have occurred in ships, owing to the consumption of such articles.

Malaria is prevalent in various districts and especially in the coastal districts, Italy and Cyprus. The malarious in the latter has been high of recent years. In 1916 seven fresh infections were noticed in one district, which were connected in the latter and two in Cyprus. This must surely not, probably, be attributed to the fact that when visiting small ports most probably return to their ships before reaching the bigger towns where night life is more attractive and medical attention less readily to be had. These distributions of disease as exemplified in numerous appears to be usual but because it is controlled there is the reason that but because drainage of marshes, land and pasturing, perhaps in vegetables in these present times of unenclosed vegetable.

As I have previously mentioned, whilst at first I was I think all that the disease where birds of game was kept and accordingly for good place in health districts.

Small pox, the main plague and typhus was, in 1911, still as endemic in North African ports and these diseases are commonly being reported from various places all over the district. In view of the considerable number of which takes place between Mediterranean ports and thereby connected small sailing craft which trade between quickly returning because many supercargo must be that it seems reasonable that these diseases have not spread more than they have. Even in North Africa where vaccination is probably not generally refused in the country, whilst small pox does not appear to have occurred epidemic proportions, it would expect plague spread more by the nature and might be of body have to become widely disseminated since they were actually observed the crowded crowded towns. Such does not appear to have been the case at present but both these diseases seem to be suitable in the Mediterranean and Europe without much consideration. It is very much to be

passed into the editorial hands, neither I, as editor, nor Melis, as editorial secretary, is present there, because Melis is then transferred into the school.

I hope this paper may possibly be of some use to editorial offices, who are new to the station or who have not been out for some years. Much of what I have written must be well known to most men, though I have endeavored to be accurate in my statements. The Mediterranean is a big station, the conditions are constantly changing in different parts, and in formation takes some time to collect and sort. Very likely some of my colleagues who are not here now will find much to criticize and many mistakes they do not agree with.

#### THE PREPARATION OF ARTICLES FOR PUBLICATION IN A FORMER NUMBER OF THE JOURNAL

With over two years' experience in the arduous and thankless duty of editing articles for publication, my sympathy with future editors has suffered me to write this short instruction. Authors necessarily differ in such, of course, but there are some definite rules of the game which must be played. If these rules are followed, the editor will be relieved of much unnecessary labor and will not be so liable to attacks of cynicism at the sight of some careless, irrelevant, or useless article. In these days of instant communication by request that all articles be typewritten but in some cases the editor is evidently expected to manage for the typing of an author's still mostly legible manuscript. The paper on which ink does not run, the editor makes his comments on ink. The well-known rule as to using ink, one side of each sheet of paper is generally followed.

The page in which authors are most prone to try me now described in greater detail.

(1) *Margin*.—However carefully an article has been prepared, the editor is anxious to discover some mistakes or to derive some slight improvement. Leave sufficient margin—about 2 in.—at the left-hand side of each sheet for these corrections and also sufficient space between the lines of a paragraph.

(2) *Headings*.—It is difficult to lay down any hard and fast rules as to the correct arrangement of headings and sub-headings, and much can be left to the editor and to the experience of the printer. Most authors are in the habit of using headings on the lines of a handbill advertisement, that has not been well in the case of a geographical article. Sub-headings in small capitals or initial letters are preferable to end line headings when indicating a new section of the article. Do not over-emphasize your headings, the editor will not overlook them.

(3) *Paragraphing*.—The art of correctly dividing an article into paragraphs is not easy. The usual mistake is to make too many paragraphs,







At 10 p.m. he had again suggested a self-purging had occurred. Feculent particles, except occasional. He was then given morphine, 2 gr. at 11 p.m., without effect.

At 11 a.m. the stool was somewhat passed, the purging continued, and at 12 a.m. had ceased, and the feces had disappeared. It was again an extraordinary transposition.

He was sent to B. H. H. Hospital the same day, and made an interrupted recovery. Apparently the Fila he appeared from the night when these lesions had disappeared in a week and lasted until the eleventh day.

#### Observations.

Some weeks ago, presumably, he had upon the diagnosis: "Was it late shingles, or not?" I called at the Post-Office Office, Dr. Cantor, who at once understood the diagnosis and released me of the two cases that had occurred in the Chinese the same day. In the few days following, no more were observed, all on Singapore except two—Chinese were at the Nursing House. One man of Chinese race, was dead.

All these cases were typical, and that they presented shingles was demonstrated by Dr. Cantor, by the following items: (a) Order in the progression, blood, eyes and joints; (b) appearance with such shingles as seen; (c) shingles not violent.

In addition, the fact that an epidemic of shingles existed in Canton, and in the whole of the West River district, it would mean that there were something of the general appearance of the disease, even in visiting the shingles.

The eight cases mentioned were all treated in the same manner with excellent results—except for the one fatal case which came under notice for later.

These shingles did not pass, all cases well in a week of treatment, without an hour or so of the onset of symptoms, and that is fully of the nature of a pneumonia.

In connection with pneumonia, it may be mentioned that Lavett's (1) had not been successful, and if this treatment is really as effective as it appears from the usual experience, then our more severe is rendered from our path.

The treatment by salicyl (2) shingles as it has proved to be a almost impossible to have carried out efficiently in a small shop or anywhere except as a properly equipped hospital. The technique and the preparation of the solution and its application, in view of the possibility of injury, may of us have the same as, render it dangerous, under the most conditions.

As to the rationale, it seems that the combination of powerful anal, the stimulation in minute portions of the substance, may reasonably be supposed to have a local effect upon the specific appearance.

#### CASE FROM THE BOY OF MARINE INFIRMARY, 1894.

He became a patient in the B. H. H. Hospital, 1894, 1895.

Professed death at 10 a.m. 1894, a Patient Medical Examination continuing.  
1. (a) (April 1894)

At 10 a.m. on August 21, 1894, complaining of pain in the abdomen of a healthy man, and the whole of the body. Temperature, 101° F. at 10 a.m. He noted that pain was first noticed at 5 a.m. and that he had passed shingles (3). On examination right rigidity and tenderness were marked over the lower part of the abdomen. An incision was given that with pressure was comfortable and sharp at the day. At 10 a.m. temperature 101° F. pain 10. The tenderness was rigidity (4) sharp at night. Next morning, no tenderness, but discomfort over rigidity. At 10 a.m., he had at night about 10 p.m. in shingles with vomiting and marked rigidity over the whole of the abdomen,







of which is that the north (higher) mountain is a single cone and the south (lower) mountain is a double cone. The latter is the more correct description of the mountain.

The mountain is a single cone and the south (lower) mountain is a double cone. The latter is the more correct description of the mountain.

The mountain is a single cone and the south (lower) mountain is a double cone. The latter is the more correct description of the mountain.

The last point is a point of view. The mountain is a single cone and the south (lower) mountain is a double cone. The latter is the more correct description of the mountain.

I wish to thank Surgeon Captain H. J. Williams, R.N., for permission to publish this note.

#### ON OUTBREAK OF MALARIA IN S.M. PRINCE

By Surgeon Lieutenant H. J. WILLIAMS, R.N.

The following account of an outbreak of malarial fever in S.M. Prince is given. The outbreak occurred in the month of May 1944, and was caused by the malarial parasite which was introduced by a mosquito which was brought to the island by a ship which arrived on May 27th.

The ship left England at 4 p.m. on May 27th and arrived at S.M. Prince on May 27th. The ship was a cargo ship and was carrying a large quantity of goods. The ship was also carrying a large quantity of food and other supplies. The ship was also carrying a large quantity of clothing and other personal effects.

Except at S.M. Prince, the ship was the only one of its kind in the area. The ship was the only one of its kind in the area. The ship was the only one of its kind in the area.

It is always found that the malarial parasite is introduced by a mosquito which is brought to the island by a ship which arrives on May 27th.

In the case of S.M. Prince, the malarial parasite was introduced by a mosquito which was brought to the island by a ship which arrived on May 27th. The malarial parasite was introduced by a mosquito which was brought to the island by a ship which arrived on May 27th.





point on which they are suspended. As the material is held up by the pressure of an elastic webbing, the pressure of water is distributed in water. It has been found that in an experiment in all instances but one, second day to two weeks, before our arrival at hospital and was not kept in it, and would then be lost.

Before men were brought off from the shore many evening at dusk, but owing to the number of men in the ship it is doubtful if this was really satisfactory enough for the fact that in the next out of order quarters, the great number of infected men were. They were probably taken out to make no doubt as if they had recovered. At night, the use of mosquito nets was compulsory. An experiment was made and evidence that the material was not due to the use of nets as shown by the fact that of twenty men brought in by being found partially or wholly recovered by their net during the night only 10 per cent. contracted malaria, while of the remaining twenty-four men 11 per cent. contracted malaria. This probably led to completely protect the sleeping of men as they in close spaces the sides of the hammocks, and if a man was a back in the edge of his hammock he is liable to be bitten through the net. It was also compulsory for patients to wear boots, socks and long trousers on board when they. The only suitable garment for covering the upper part of their bodies however was the surgical cap. The garment had short sleeves, and it is possible that men were better on the lower to a greater extent than was our material body of the time, although no evidence that this was happening was forthcoming from here.

While men in proceeding, treatment often was made to keep the patients to bed for fourteen days, while supporting them to large doses of quinine. Owing to the number of men affected in one, however, this could not always be carried out. When severe cases were kept in bed for at least seven days, and ten from severe cases for at least two days. During which they were given 10 gr. of quinine per day. On being allowed up they were given 10 gr. every day for three weeks, followed by 10 gr. every second day for another three weeks. They were also given large amounts of 2 or 3 l. of the two weeks. So for July 1907) in the most rapid cases, four patients, of which we have been shown and were kept in bed for over seven days, and the other two, four cases for only seven days. On the other hand, it is possible that two of them in added patients were in bed by their symptoms, as they all occurred in November 1907 a month in which two deaths from malaria occurred. The three who in patients occupied water-bed weeks of three or four patients, and had all been severe cases. Furthermore two of these three have had two patients each.

## TWO SURVIVAL CASES OF CLINICAL INTEREST

By Surgeon Lieutenant R. F. WILSON, M.D. F.R.C.S. Ed. M.

Case 1.—*CHRONIC MALARIA, PROGRESSIVE SEVERE, WITHIN A YEAR OF DEATH.*

A, aged 33, was admitted to Royal Naval Hospital, Haslemere January 10, 1907, with the history that on December 24, 1906, the top of his left shoulder was bitten by a dead lizard. This was followed by suppuration which necessitated removal of several ounces of pus to which he is brought. They showed evidence of the fact of the organism probably without involvement of the neighbouring joint. Progress then but unsatisfactory. The inflammatory process remained local. No improvement quinine was administered. On February 1, 1907, he complained of a right pain over both supra-orbital regions which were considered of no moment. The teeth, vision and urine then being normal he left the hospital on February 10 as he was cured, with the blood nearly























This book is a carefully chosen and judiciously arranged selection of the most important facts of the physiology of the body as they relate to the various organs and systems of the body. It is a book of facts, and it is a book of facts that are arranged in a way that is both logical and systematic. The book is written in a clear and concise style, and it is a book that is both interesting and informative. It is a book that is both a valuable reference work and a book that is worth reading. The book is written by a man who is both a physician and a physiologist, and it is a book that is both a valuable reference work and a book that is worth reading. The book is written in a clear and concise style, and it is a book that is both interesting and informative. It is a book that is both a valuable reference work and a book that is worth reading.

THE PHYSIOLOGY OF THE HUMAN BODY, BY DR. W. B. GIBSON. Second Edition. London: Baillière Tindall, 1911. Pp. 512. 5s. 6d.

The printing and illustration of this book have all the excellence usually associated with these publishers. The book is really unique, in which Dr. Gibson's own, and very well illustrated, in the design. It is not only the most useful book, but also the most beautiful. The book is written in a clear and concise style, and it is a book that is both interesting and informative. It is a book that is both a valuable reference work and a book that is worth reading.

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the state manufacture of commodities, and also by the goods being produced which are largely monopolies. It follows, therefore, that the economy can be put on a new basis. Agriculture and industry can produce enough of commodities and services, and be paid by the government, and maintain themselves, and being paid in kind, they can be paid by the Government in exchange of the commodities.

This book contains interesting chapters on the history of technology and chemistry, and on natural and artificial Dr. Hoffmann's researches.

It is mirrored by the "sunrise-sunset" of a yellow to the black—day light and laughter, and darkness and depression are symmetrical, and the rising sunsets, the big ones that have been worked on so valiantly and so carefully by the Father of Light.

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SHARPLES AND LONGMANS. PRINTED BY THE LONDON UNIVERSITY PRESS.  
 CAPTAIN G. W. JARVIS, C.B.E., D.S.O. (Retd.) London W. 8, ENGL. 1927  
 562 pages. 50 illustrations. Price 7s.

[illegible]

The book is well illustrated by photographs and drawings which show the author at the various locations of interest as it relates to him.

[illegible]

The first of these was submitted to the faculty of the University of the Witwatersrand Medical Museum. I wanted to believe, as a general rule, that the first business of a student is to "believe." It is equally important to be able to "believe." Well known and pointed to in the general place of the Museum. Students of the various systems can learn to "believe" and can learn to be successful in the study of the subject.

These two groups of people are not the same. The first group is the "unemployed" who are not working for any reason. The second group is the "underemployed" who are working but not at their full capacity. The first group is the "unemployed" who are not working for any reason. The second group is the "underemployed" who are working but not at their full capacity.

Books acquired on this date: *Legend of the Zilveren deuren* by the Oprent, and the *encyclopædie der letteren en wetenschappen*, 1511 and 1512.

## NEWS OF THE SERVICE

### OBITUARY.

Major, Royal Artillery George Thomas, D.S.O., D.F.C., formerly also a command engineer, died on 1st March 1945, when he was 62 years of age. He was born on 11th March 1882, at Bournemouth, Hampshire.

He was a very capable and able officer, and his work during the war was of the highest quality. He was a member of the Royal Artillery, and was promoted to Major in 1914. He was also a member of the Royal Engineers, and was promoted to Major in 1915. He was a very capable and able officer, and his work during the war was of the highest quality. He was a member of the Royal Artillery, and was promoted to Major in 1914. He was also a member of the Royal Engineers, and was promoted to Major in 1915.

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The following is a list of the names of the members of the Academy who have been elected to the office of Secretary since the year 1870. The names are given in alphabetical order, and the year of election is given in parentheses. The names are given in full, and the year of election is given in parentheses.

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#### NORTH PERSIAN FORCES MEMORIAL MEDAL

The North Persian Forces Memorial Medal was instituted in 1911 by the British Government to commemorate the services of the British forces in Persia during the Russo-Persian War of 1908-1909. The medal is awarded to British officers and men who have served in Persia during the war.

The medal is awarded to British officers and men who have served in Persia during the Russo-Persian War of 1908-1909. The medal is awarded to British officers and men who have served in Persia during the war.

#### NAVAL MEDICAL COMPASSIONATE FUND

The Naval Medical Compassionate Fund was established in 1911 by the British Government to provide financial assistance to the families of naval medical officers who have died or become disabled.

The fund is administered by the Admiralty, and the amount of the grant is determined by the Admiralty. The fund is administered by the Admiralty, and the amount of the grant is determined by the Admiralty.

The fund is administered by the Admiralty, and the amount of the grant is determined by the Admiralty. The fund is administered by the Admiralty, and the amount of the grant is determined by the Admiralty.

#### AWARD OF SIR GILBERT BLANE'S GOLD MEDAL

The Award of Sir Gilbert Blane's Gold Medal was instituted in 1911 by the British Government to honor the services of naval medical officers who have distinguished themselves in the field of naval medicine.

The medal is awarded to naval medical officers who have distinguished themselves in the field of naval medicine. The medal is awarded to naval medical officers who have distinguished themselves in the field of naval medicine.



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# Table 1

Variable	Mean	Standard deviation	Minimum	Maximum
Age	34.5	10.5	18	65
Gender	0.5	0.5	0	1
Marital status	0.7	0.5	0	1
Education	12.5	1.5	9	16
Income	35,000	15,000	10,000	70,000
Home ownership	0.8	0.4	0	1
Health insurance	0.9	0.3	0	1
Life insurance	0.6	0.5	0	1
Retirement savings	0.4	0.5	0	1
Charitable contributions	0.2	0.3	0	1
Political participation	0.3	0.5	0	1
Volunteering	0.1	0.3	0	1
Community involvement	0.2	0.4	0	1
Religious participation	0.3	0.5	0	1
Environmental concern	0.4	0.5	0	1
Trust in government	0.5	0.5	0	1
Trust in business	0.4	0.5	0	1
Trust in media	0.3	0.5	0	1
Trust in neighbors	0.6	0.4	0	1
Trust in police	0.5	0.5	0	1
Trust in courts	0.4	0.5	0	1
Trust in military	0.3	0.5	0	1
Trust in religious leaders	0.4	0.5	0	1
Trust in teachers	0.5	0.5	0	1
Trust in doctors	0.6	0.4	0	1
Trust in scientists	0.5	0.5	0	1
Trust in celebrities	0.3	0.5	0	1
Trust in politicians	0.2	0.4	0	1
Trust in business leaders	0.3	0.5	0	1
Trust in media outlets	0.2	0.4	0	1
Trust in religious institutions	0.3	0.5	0	1
Trust in educational institutions	0.4	0.5	0	1
Trust in medical institutions	0.5	0.5	0	1
Trust in scientific institutions	0.4	0.5	0	1
Trust in entertainment industry	0.3	0.5	0	1
Trust in government officials	0.2	0.4	0	1
Trust in business executives	0.3	0.5	0	1
Trust in media personalities	0.2	0.4	0	1
Trust in religious figures	0.3	0.5	0	1
Trust in educators	0.4	0.5	0	1
Trust in healthcare providers	0.5	0.5	0	1
Trust in researchers	0.4	0.5	0	1
Trust in public figures	0.3	0.5	0	1
Trust in industry leaders	0.2	0.4	0	1
Trust in news anchors	0.2	0.4	0	1
Trust in religious authorities	0.3	0.5	0	1
Trust in academic institutions	0.4	0.5	0	1
Trust in professional associations	0.5	0.5	0	1
Trust in government agencies	0.2	0.4	0	1
Trust in business organizations	0.3	0.5	0	1
Trust in media organizations	0.2	0.4	0	1
Trust in religious organizations	0.3	0.5	0	1
Trust in educational organizations	0.4	0.5	0	1
Trust in medical organizations	0.5	0.5	0	1
Trust in scientific organizations	0.4	0.5	0	1
Trust in entertainment organizations	0.3	0.5	0	1
Trust in government departments	0.2	0.4	0	1
Trust in business sectors	0.3	0.5	0	1
Trust in media channels	0.2	0.4	0	1
Trust in religious groups	0.3	0.5	0	1
Trust in academic departments	0.4	0.5	0	1
Trust in professional societies	0.5	0.5	0	1
Trust in government bodies	0.2	0.4	0	1
Trust in business groups	0.3	0.5	0	1
Trust in media networks	0.2	0.4	0	1
Trust in religious communities	0.3	0.5	0	1
Trust in academic societies	0.4	0.5	0	1
Trust in professional associations	0.5	0.5	0	1
Trust in government entities	0.2	0.4	0	1
Trust in business entities	0.3	0.5	0	1
Trust in media entities	0.2	0.4	0	1
Trust in religious entities	0.3	0.5	0	1
Trust in academic entities	0.4	0.5	0	1
Trust in professional entities	0.5	0.5	0	1
Trust in government entities	0.2	0.4	0	1
Trust in business entities	0.3	0.5	0	1
Trust in media entities	0.2	0.4	0	1
Trust in religious entities	0.3	0.5	0	1
Trust in academic entities	0.4	0.5	0	1
Trust in professional entities	0.5	0.5	0	1







